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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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LIEN FOR MATERIALS--CHANGE OF OWNERSHIP--NON-OWNER NOT RESPONSIBLE.

Judge Swan, in the United States Circuit Court, in session at Detroit, handed down a decision Saturday in the case of the Globe Iron Works Co. against the steamer John B. Ketchum; second, dismissing the bill of complaint.

In 1892, Bills & Koch, of Toledo, contracted with the Craig Ship Building Co. of the same place for the construction of a vessel, afterwards known as the John B. Ketchum; second, Bills & Koch to furnish the machinery and the Craig Ship Building Co. to construct the boat and deliver her complete for $65,000.

During the progress of construction Bills & Koch bought from the Globe Iron Works Co. a boiler and attachments for about $4,500, which were put into the vessel by the Craig company. The vessel was in the first instance enrolled in the name of the Craig company, but in September, 1892, that company gave Bills & Koch a bill of sale of her, thus vesting the title in them, and took a mortgage back for the purchase price. The Craig company subsequently foreclosed this mortgage and bid the boat in, thus again becoming owners, and they afterwards sold her to H. M. Loud, and he to the Huron Transportation Co.

Bills & Koch gave the Globe Iron Works Co. their notes for the boiler, which are still unpaid. The Globe company in the present proceedings sought to enforce a lien on the vessel, claiming to be material men under the statutes of Ohio. Action was commenced in the state courts in this state and afterwards transferred to the United States court and a hearing was had before Judge Swan, who has decided against the Globe company's claim.

The basis of the decision is that the Ohio statute gives a lien to persons who furnish materials or supplies to any vessel where they are contracted for by the owner or some agent of his. The holding here was that the Craig company was the owner, and remained such until the bill of sale was made, and hence the contract for the boiler, having been made with Bills & Koch, was not made by the owner or anyone representing him as agent.

SHIPBUILDING IN JAPAN.

In shipbuilding, Japan is rapidly becoming a competitor with other maritime countries. An important function was recently performed at the Mitsinbishi shipbuilding yard, at which 1,500 guests and visitors attended. It was the launch of the steamer Hitachi Maru for the Nippon Yuson Kaishai. The vessel was classed 100 A1 at London, Lloyd's. Her length is 462 ft.; beam, 49 ft. 2 in.; depth, 33 ft. 6 in.; and average draft, 25 ft.; its tonnage is 6,150 tons; displacement, 11,660 tons; her engines are triple-expansion, twin-screw, and indicated 3,500 horse-power, the speed being 14 knots. In Japan there are 71 shipbuilding yards, and 28 in Osaka. The steamers constructed during the year were 54 in number, though the largest were only about 600 tons burden.

The Japanese mercantile marine is of considerable dimensions. It consists of 735 vessels with a gross tonnage of 390,334 tons. Of these 570 are steamers and 165 sailing vessels. The great bulk is engaged with the home trade, yet no less than 115 steamers and five sailing vessels were engaged in foreign trade. A number of these vessels received special grants from the Japanese government under the law for the encouragement of navigation. For every 1,000 tons and 10 knots speed the grant is at the rate of 25 sen per ton per 1,000 miles; for every additional 500 tons 10 per cent. is added, with an increase of 20 per cent. more for each additional knot. The Nippon Yuson Kaishai is a prominent competitor for the carrying trade to and from Japan.

REPORT OF FREIGHT AND PASSENGER TRAFFIC

TO AND FROM LAKE SUPERIOR FOR THE MONTH OF JULY, 1898, INCLUDING STATISTICS OF THE UNITED STATES AND CANADIAN CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO.

EAST BOUND.

ITEMS.	US CANAL.	CANAD'N CANAL.	TOTAL.
Copper, net tons	16,092	610	16,702
Grain, bushels	1,291,100	267,464	1,558,564
Building Stone, net tons	462	.....	462
Flour, barrels	469,805	87,720	557,525
Iron ore, net tons	1,834,136	221,438	2,055,574
Iron, Pig, net tons	6,446	.....	6,446
Lumber, M. ft. B. M	139,722	235	139,957
Silver Ore, net tons	.....	.....	.....
Wheat, bushels	1,667,215	691,052	2,358,267
Unclass'd Freight, net tons	27,252	6,035	33,287
Passengers, number	3,397	2,338	5,735

WEST BOUND.

ITEMS.	US CANAL.	CANAD'N CANAL.	TOTAL.
Coal, (hard) net tons	54,876	16,003	70,879
Coal, (soft) net tons	494,604	84,636	579,240
Flour, barrels	200	.....	200
Grain, bushels	565	.....	565
Manufactured Iron, net tons	46,458	.....	46,458
Salt, barrels	25,410	3,814	29,224
Unclass'd Freight net tons	41,502	3,143	44,645
Passengers, number	4,528	2,123	6,651

East Bound Freight, net tons	2,491,019
West Bound Freight, net tons	755,768
Total	3,246,787
Total Craft, United States	2,025
Total Craft, Canadian	559
Total	2,584
Total Registered Tonnage, United States	2,331,062
Total Registered Tonnnage, Canadian	314,043
Total	2,645,105

THE COMMERCE OF ASHTABULA.

The shipping and commerce report for July at Ashtabula gives the total ore receipts as 490,683 tons and the coal shipments as 128,178 tons; shipments of merchandise 791 tons. There were 224 arrivals and 217 clearances. The ore receipts for July show a decrease of 17,045 tons over the corresponding month of last year. However, the total ore receipts for the season thus far are 1,301,336, which exceeds the receipts to August 1 of last year by 12,182 tons. The coal shipments for the season thus far show an increase over the shipments to August 1, last year, of 177,233 tons. The total coal shipments this year to August 1 are 500,279 tons. The coal shipments for July exceed those of July last year by 105,373 tons.

ERIE CANAL IMPROVEMENTS.

The report of the New York canal investigation commission contains nothing startling, because it does not charge any individual or official with extravagance in the handling of the canal funds. It was known that there had been gross miscalculation on the part of the state engineer as to the extent of the work to be done on the canals, and this led the suspicious to expect something wrong. The commission found that the real cost of the work was greatly underestimated, and that it will require at least $13,650,000 in addition to the $9,000,000 which has already been expended to complete the canal improvement in accordance with the plans now only partially carried out. In doing the work there has been more or less favoritism to contractors as a result of a loose system of mangement, but no actual stealing, so far as the commision has been able to ascertain. Much of this looseness is due to divided responsibility. The commission reports that the superintendent of public works and the state engineer and surveyor are entrusted with powers and functions so interwoven that it is difficult to fix the responsibility in the event of negligence or wrong-doing. It therefore recommends that the sole responsibility be vested in either one department or the other.

The commission recommends that the work be carried to completion, and that the promotion of the work be accompanied by more accurate surveys and estimates. This recommendation will undoubtedly be accepted, as the people of the state of New York appreciate the value of their canal system in influencing freight rates to the advantage of shippers. The additional $13,650,000 will doubtless be voted, and the work will proceed. According to computations by the commission, the entire cost of the construction, enlargements and maintenance of the canals up to 1885 was $102,345,123, but the state has received from tolls $134,648,900, so that the canals up to October 1, 1885, had paid the state $32,303,777 more than they cost, and up to date, the entire cost of the canals, including the $9,000,000 spent on the improvements under way will fall short of that profit several millions.

A GREAT RUSSIAN CANAL.

The bureau of naval intelligence has published detailed accounts of a great canal project about to be undertaken by the Russian government. The canal will connect the Baltic with the Black Sea, and will enable Russia to concentrate her fleet at either end in less than a week. The canal begins at Riga and follows the course of the Duna to Dunaburg, and from there an excavation is to carry it to Lepel, along the water course to the Dneiper, and down the river to the Black Sea at Cherson, which will be the southern terminus. Its entire length will be 1,080 miles, but by using the rivers the artificial construction will extend only 125 miles. The ports of Riga and Cherson are to be greatly improved. The cost of the entire construction is estimated at $97,000,000, and its completion to follow within four years.

RELICS FROM THE PEWABIC.

The wrecking steamer Root went into Alpena on Monday with an interesting collection of relics brought from the foundered steamer Pewabic. Parts of skeletons, a dress coat, bottles of pop made by the Detroit bottling works thirty-three years ago, some of which was sampled by the crew and pronounced as good as new. Several tons of copper were brought up. The captain of the Root says he will recover a large amount of goods as soon as they rip up the main deck.

THE first meeting of the joint high commission appointed by the United States and Great Britain to consider various matters of importance between the United States and Canada, will be held at Quebec on the 23d inst.

NEWS AROUND THE LAKES.

CLEVELAND.

Special Correspondence to The Marine Record.

Repairs on the schooner Helvetia were completed at the Ship Owners' dry dock this week and she was towed to Lorain by the tug Henry.

The steamer State of Ohio, which has been chartered by the Lake Michigan and Lake Superior Transit Co., left for Mackinaw on Wednesday night.

The steel steamer Hendrich S. Holden, built by the Globe Iron Works Co. for Mitchell & Co., as managing owners, is measured at 4,444 tons gross and 3,091 tons net.

The revenue cutter Onondaga left this port for Ogdensburg, Wednesday evening. In addition to her officers and crew, she had on board Manager R. L. Newman, of the Globe Iron Works; Pilot John Brown, and Assistant Pilot Joseph Gorman.

Barge 110 went aground opposite the river custom house on Wednesday night. The tugs Kennedy and Grover worked at her and finally released her. She was drawing seventeen feet eight inches. The Alexander McDougall went aground Monday night when entering the harbor. The McDougall was drawing seventeen feet eleven inches. There was also one other case of grounding in the harbor this week.

The steamer building at the Lorain yards of the Cleveland Ship Building Co., for Robert R. Rhodes and others, will be named the Huron. She will be launched next Thursday afternoon. She will be completed about September 15 and will be operated with the steamers Minneapolis and St. Paul between Gladstone and Lake Erie ports. Another launch to take place within a few days is the large steel tow barge for the Bessemer Line, now nearing completion at West Bay City, under the superintendence of Mr. Robert Logan, of Cleveland.

W. C. Richardson and others, commenced eleven different suits this week in the Common Pleas Court against marine iusurance companies for the collection of alleged unpaid policies on the large schooner H. A. Barr, and the steamer J. H. Outhwaite, which were recently abandoned to the underwriters. The following companies are made defendants in the different petitions: The Indemnity Mutual Assurance Co., of London, in two suits, for the total sum of $60,000; the National Standard Insurance Co., of New York, on two suits, for the sum of $12,000; the World Marine Insurance Co., of London, on two suits, for the sum of $12,000; the Insurance Company of North America, of Philadelphia, for $7,500; the St. Paul Fire and Marine Insurance Co., in two suits, for the sum of $6,000, and F. W. Martin and others, in two suits, for the sum of $12,000, making a total of $109,500. In the petitions, it is averred that requests had been made upon these companies for the payment of the policies, but that payment had been refused. The court is asked to render judgments for the different amounts named. Goulder & Holding appear as attorneys for the owners in all the cases and will of course argue that the two vessels were constructive total losses when stranded, and abandoned by the owners.

CHICAGO.

Special Correspondence to The Marine Record.

At the Chicago floating dry dock the tug James Quinn was in for a new wheel and rudder, the tug E. E. Rice for a new wheel.

Grain freights have a slightly upward tendency this week, 1⅛ cents on corn and 1¼ cents on wheat having been paid by shippers.

William Schaffer, aged 57 years, of Chicago, mate on the schooner Escanaba, fell down a hatchway into the hold of the steamer at Toledo and was seriously injured.

The steamer Norwalk was in at the Chicago Ship Building Co.'s dock for repairs to stern bearing and fastening loose wheel, the steamer Manitou is receiving repairs to her machinery.

J. W. Hanson, shipping-master for the Lake Carriers' Association, reports that there is a scarcity of sailors at this port, and he experiences considerable difficulty to find men to fill the usual vacancies.

The steamer State of Ohio left here unexpectedly on the night of the 4th instant, having cleared for Detroit instead of St. Joseph. The patrons of the O'Connor Transportation Co. felt much disappointed at her sudden departure.

J. J. Rardon & Co. chartered the steamers Shenandoah, Rappahannock, Thos. Davidson and Brazil, and barges Algeria, Armenia and F. D. Ewen for corn to Buffalo at 1 cent, the steamer City of London for corn to Erie at 1 cent.

On the 5th instant, the largest transaction in the grain business, since early in the spring, was done at this port. The clearance report at the custom house for that day showed that the totals aggregated 890,000 bushels. The grain was loaded on board 13 vessels.

At Miller Bros. shipyard the schooner Capt. G. W. Naughtin was in for repairs to damage occasioned by running on to the wreckage of the steamer City of Duluth, at St. Joseph, Mich., and the schooners Mary Collins and H. A. Richmond were in to have leaks stopped.

There was great activity at the docks between 12th and 16th streets on Monday. The steamers Sachem, Germania and Huron City, barges A. D. Hayward and Bay City, and schooners Herschel and Annie O'Hansen were unloading railroad ties, the steamer Olympia and schooner John Kelderhouse loading grain, and the steamers Saranac and Rochester, merchandise.

H. W. Cook & Co. chartered the steamer W. H. Wolf for clipped oats, South Chicago to Buffalo at 1 cent, steamers Venezuela and Fred Pabst for oats, Chicago to Buffalo at 1 cent, the barge Paisley for corn to Buffalo at 1⅛ cents, steamers Panther and Germania for oats to Sarnia at 1 cent, barge A. D. Hayward for corn to Sarnia at 1 cent, steamer New Orleans for corn to Port Huron at 1 cent, steamer Sanilac for lumber, Menominee to Chicago at $1.00, schooners J. H. Mead, C. J. Magill, John Mee and George Steel for lumber, Manistique to Chicago at $1.00, schooner Iver Lawson for posts, Bark river to Chicago at 3½ cents, steamer Westover for lumber, Vans Harbor to Chicago, barge Parana for lumber, Garth to Chicago, barge Bliss for lumber, Nahma to Chicago, steamer Simon J. Murphy and Katahdin for corn to Lake Ontario.

The stocks of grain in Chicago elevators last Saturday evening were 806,000 bushels of wheat, 6,822,000 bushels of corn, 791,000 bushels of oats, 106,000 bushels of rye, and no barley; total, 8,525,000 bushels of all kinds of grain, against 14,198,000 bushels a year ago. For the same date the secretary of the Chicago Board of Trade states the visible supply of grain for the United States and Canada as 8,254,000 bushels of wheat, 17,920,000 bushels of corn, 3,352,000 bnshels of oats, 437,000 bushels of rye, and 298,000 bushels of barley. These figures are smaller than the corresponding ones of a week ago by 839,000 bushels of wheat, larger by 345,000 bushels of corn, smaller by 88,000 bushels of oats, larger by 132,000 bushels of rye, and smaller by 45,000 bushels of barley. The visible supply of wheat for the corresponding week of a year ago decreased 164,000 bushels.

The L. M. & L. S. Transportation Co's steel passenger steamer Manitou, arrived here Sunday, in tow of the Canadian steamer Algonquin, which had picked her up in a disabled condition, off Manistee, Mich. The Manitou had just passed Point Betsey, headed for Chicago, on Saturday, when chief engineer Peck, who was on duty, heard the jib in the crosshead of the low pressure piston drop to the floor of the crank pit. He immediately sprang for the throttle, but before he could reach the levers the engine was crashing to pieces. The loss of the jib had caused the bolts in the crosshead to break and release the connecting rod. The cylinder-head was broken, the levers of the throttle were bent and twisted, two columns of the engine frame were broken off short as the cylinder crashed, and the bed-plate of the engine was also broken. The steamer was towed to South Chicago later in the day to undergo repairs to her machinery. Chief engineer Peck, and oiler Arthur Sherman stuck to their posts like heroes.

FLOTSAM, JETSAM AND LAGAN.

Capt. Daniel Murphy qualified Saturday as master of the passenger steamer Empire State.

The tug Mary Hall was launched at Ogdensburg Saturday. She was built for the George Hall Coal Co.

The time for the submission of proposals for the construction of torpedo-boat destroyers and torpedo-boats has been extended by the Navy Department from the 9th to the 16th inst.

The Bay City Tribune rises to remark that now that Ella Wheeler Wilcox has analyzed the kiss which Miss Emma Arnold gave Hobson, it would be as well, perhaps, to let the incident close automatically.

In reprinting articles from this Journal our contemporaries will oblige us if they will give credit as follows: The MARINE RECORD, Cleveland, instead of the Cleveland MARINE RECORD. This is especially for the New York American Shipbuilder.

A catalogue of various pneumatic tools, such as riveters, caulking tools, etc., is just issued by the Ridgey & Johnson Tool Co., Springfield, Ill. The various tools are well illustrated, showing them in use for ship work, etc., making the catalogue a very useful one.

The steamer Scandia, of the Hamburg American Line, has been formally transferred to the United States government. The Scandia is a vessel of 4,243 tons, 370.7 ft. long, 44.3 ft. beam, with 26.5 ft. depth of hold. She was built in 1889 by the Vulcan Iron Works, of Stettin.

At the office of the International Navigation Co., New York, it is stated that official announcement had been received that the government is soon to return the steamers St. Paul and St. Louis, which have been under charter to the Navy Department, and which have rendered efficient service.

The collector of customs at Detroit received the following customs decisions from the Treasury Department. A fee of $2 must not be charged for granting a permit for a Canadian vessel to proceed from one American port to another, the vessel leaving light or having on board part of a foreign cargo. A ten cent stamp only should be charged.

Capt. Edward H. Maytham, Buffalo, purchased the yacht W. F. Halstead of Gratten & Latimer, freight contractors, and also the tug T. M. Moore of Harmon & McNally, of Toledo. The Halstead is to take the place of the Portia, recently chartered to the government by Maytham, and the Moore will be used for general harbor work. The terms of the purchases are kept private.

The longest lake sailing yacht race on record, a distance of 332 miles, was finished this week with the Vanenna the winner. The course was from Chicago to Mackinac, and was covered in about 53 hours. The yacht Siren was only 30 minutes behind the Vanenna. The victor takes a prize of $250 from the Chicago Yacht Club, and the Siren gets $150. The race began Saturday morning at 9 o'clock.

The five wooden steamers of the Lehigh line, Tacoma, Capt. J. Byrnes; Oceanica, Capt. J. Todd; Clyde, Capt. C. E. Fuller; Fred. Mercur, Capt. H. McDermott; H. E. Packer, Capt. J. A. Whiteside, are now all at work and will carry coal and grain the rest of the season. It will be seen that the captains are a good deal changed about since last season. The R. A. Packer will not be fitted out this season unless freights go up more than is now looked for.

The Hershoffs, of Bristol, R. I., the most famous builders of small, fast steamers in the world, have been given an order for a steamer to run up the river from Marine City as a part of the line of Detroit & River St. Clair Electric Railway. She will be about 175 feet long, of very narrow beam and light draft, and guaranteed good for twenty miles an hour. Her average speed, it is said, will be about eighteen.

The reason why ships are not struck by lightning is attributed by German authorities to the general use which is now made of wire rope for rigging purposes, as well as to the fact that the hulls of ships are usually constructed of iron or steel. Thus the whole ship forms an excellent and continuous conductor, by means of which the electricity is led away into the ocean before it has time to do any serious damage.

The big steamer Yale, which was launched in 1895, will be docked for the first time next week. This is her fourth season, and there is probably not another steel steamer on the lakes that has been in commission that long without being placed in dry dock. Capt. John Caulter brought the Yale out and he is still in command of her. She will be docked at the Lorain yards of the Cleveland Ship Building Co.

The Western Transit line has made a general change of engineers on their vessels. Frank Miller, engineer of the steamer Boston, has been transfered to the steamer Harlem. He will succeed Henry Hess, who has been transferred to the new ship Troy, which was launched at Wyandotte a short time ago. Patrick Welch, engineer of the Arabia, has been removed to the Boston. It has not yet been definitely announced who would fill the place which Engineer Welch has been removed from.

A steam engine, one of the oldest in the world, built by Benton & Watt, in 1777 for the Birmingham Canal Navigation, which had been working regularly for the last 120 years at Smethweck, in the pumping works, has just been put aside for a more powerful engine built for the same company by the same firm. The old engine will be set up again at another station as a memorial of what can be done with good machinery by careful management. This story has gone around can anyone contradict it?

It is thought that another steamer line will be established between Waukegan, Kenosha and Chicago to compete with the Burke Transit Co., which has a monopoly since it absorbed the Robertson line. Recently, Capt. Mooney was succeeded in the command of the steamer Faxton, of the Burke line, by Capt. Thompson. Capt. Mooney is now soliciting patronage for a new line, which he expects to start soon. It is thought that there is hardly business enough for competitors.

An editor has been inspired, after looking over his list of delinquent subscribers, to compose the following: "How dear to our heart is the silver dollar, when some kind subscriber presents it to view; the liberty head without necktie or collar, and all the strange things which to us seem so new; the wide spreading eagle, the arrows below it, the stars and the words with the strange things that tell; the coin of our fathers, we're glad that we know it, for some time or other 'twill come in right well; the spread-eagle dollar, the star spangled dollar, the old silver dollar we love so well."—Life and Health.

During June English shipbuilders put into the water twenty-three steamers, a battleship, a pontoon and a trawler, aggegating about 93,383 tons, against twenty-nine vessels, of about 71,610 tons, in the previous month, and thirty-three vessels, of about 61,091 tons gross, in June last year. For the six months English builders have launched 161 vessels, of about 500,879 tons gross, against about 322,420 tons in the corresponding period last year. Two steamers of 13,500 tons gross were launched at Belfast. The total launches for the United Kingdom during the first six months of this year have been 368 vessels, of about 686,137 tons gross, as compared with 344 vessels, of about 521,969 tons gross, for the first six months of 1897.—The Steamship.

Some couple of years ago an official paper of England, in describing the merits of a 110-ton gun, said that it could fire two $1,500 shots a minute, and that such guns would not do in the United States, for the reason that after an hour's fighting the gunners would have to sit down and wait for another appropriation from Congress. If landsfolk were told that to-day the cost of shot and powder for one hour's firing of the main batteries alone of, say, sixteen of our best ships would reach the sum of nearly $1,000,000, some of them would certainly doubt the accuracy of the statement. A distinguished naval officer, whose knowledge of ordnance is next in importance to that of the commander-in-chief of the squadron now off Santiago, was shown the figures from which this result was derived, and he declared it to be altogether too small.

THE RAINFALL OUTFLOW, AND LEVELS OF THE GREAT LAKES.

(From the Monthly Weather Review for April. Department of Agriculture, Washington. D. C.)

In a complete study of the rainfall over the Great Lakes, the variations in their surface levels, and the eventual discharge at the respective outlets, the following items have to be considered:

(*a*) The total amount and distribution throughout the year of the rainfall and melted snow on the lake surface.

(*b*) The run off from the watershed into the lake, which, of course depends upon the rainfall and snowfall minus the evaporation and consumption.

(*c*) Evaporation from the lake surface itself.

(*d*) The outflow or discharge from the lake.

(*e*) The effect of the current winds in temporarily changing the level, and also the effect of the average wind in permanently changing the level of the water.

(*f*) The small variable effects of solar and lunar tides, changes of the earth's axis, variations of barometric pressure, varying temperature, and density of the water.

(*g*) The secular changes due to gradual geological changes by which the earth's surface is being slowly tipped in one direction or another, as also those due to sliting up of the shallow and quiet portions, and those due to the wearing away of the channels and banks. These secular changes may be appreciable in fifty years, but as compared with the variations of rain and snow, evaporation, and winds, they have no importance in annual means.

In general, the experience of the past three hundred years has shown that the surfaces of the various lakes have oscillated up and down through a range of several feet about a mean position that must represent very closely the normal balance between the annual income and outgo for the present century. So far as the atmosphere is concerned the normal supply is not likely to change, but the normal outflow is subject to considerable variations and to a slow secular increase that may eventually lower the levels of the surfaces of the lakes.

A satisfactory study of important points relative to this subject would require an elaborate collection of new data and its consideration from this special point of view, a work that will undoubtly be carried out by the engineers of United States Deep Waterways Commission.

The extensive tables of the report of the United States Deep Waterways Commission, show the average elevation of the lake surface at numerous points, month by month, since accurate records began, generally about 1860. In order to understand the reason for the monthly variations it will be necessary to compile a table showing the rainfall and accumulated raintall, month by month and year by year, over the lake surface; the same items as to evaporation from the lake surface; the same items as to run off from the watershed; finally, the same items as to outflow from the lakes, which latter, of course, varies principally with the height of the water at the outlet itself. At the present time we know none of these seperate items with anything like the accuracy that is necessary and of course, therefore, we can only predict in a very general way the effect that will be produced by the addition of engineering works to the present natural system.

The outflow from each lake has been measured at several times, and the results, as quoted by G. Y. Wisner, (First Annual Convention of the International Deep Waterways Association, page 126 are as follows:

1.—Lake Superior, 86,000 cubic feet per second, or 36.74 inches in depth over the whole surface of Lake Superior per year.

2 plus 3.—Lake Michigan plus Lake Huron, 225,000 cubic feet per second, or 67.02 inches in depth per year. There is no sensible difference between these two lakes, and they must be treated as one.

2 plus 3 plus 4.—Lake Michigan plus Lake Huron plus Lake St. Clair, 230,000 cubic feet per second, or 67.00 inches per year.

5.—Lake Erie, 265,000 cubic feet per second, according to Mr. D. F. Henry, but 230,000 cubic feet per second according to Mr. Ruffner of the United State Engineers. The average of these is 250,000 which will be assumed as a mean annual outflow. According to the records in the Annual Report of the Chief of Engineers for 1893, p. 4367, the observation between December, 1891, and May, 1892, show the following large range, namely, 1891, December 24, at low water stage, 164,648 cubic feet per second, and 1892, May 23, at a high stage, 239.677 cubic feet per second. It would seem that a much longer series of observations is necessary in order to determine the normal discharge and that our adopted figures may easily be 10 per cent. too large.

6.—Lake Ontario, 300,000 cubic feet per second.

As I do not know of any more accurate measurements of discharge and presume that all these figures will be revised in the next report of the United States Deep Waterways Commission, I will make these the basis of a preliminary computation. The details of the steps as we proceed down the chain of lakes may be explained as follows:

LAKE SUPERIOR.

The map of annual normal distribution of rain and melted snow shows that about 31.2 inches of rain falls on the surface of the lake as well as on that of its watershed. Of this latter quantity about 25 per cent may be estimated as run off into the lake, the remainder is absorbed by the ground or evaporated into the air. This adds 7.8 inches in depth for the whole area of the watershed, but as the surface of the lake is smaller than that of the watershed, this is equivalent to 11.9 inches for the whole area of Lake Superior. As there is no inflow from an upper lake this gives $11.9+31.2=43.1$ inches in depth,as the annual supply over the whole surface. It is estimated that the annual evaporation takes off 15.0 inches, thus leaving 28.1 as a normal annual addition to the depth of the lake. If the lake is to maintain its level without change this available surplus must be counterbalanced by an equal outflow through the St. Mary's river. The actual outflow has been measured frequently, and as quoted above from Wisner, will first be assumed as 86,000 cubic feet per second. It is most convenient to convert this measured discharge per second into the corresponding depth of water run off from the whole lake during the year, which is easily done as follows: The observed or approximate discharge of Lake Superior in cubic feet per second, divided by the number of square feet in the surface of the lake, will give the equivalent linear depth by which the water must fall in one second, viz, $\frac{86000}{31800} \times 5{,}280 \times 5{,}280$; multiplying this by the number of seconds in a year, i. e., 86,400 x 365.25, we obtain the annual discharge expressed as a depth of water over the whole surface of the lake in feet (or multiplying by 12, in inches). The result is—for Lake Superior—36.736 inches.

LAKE MICHIGAN + HURON.

Similarly the discharge of Lake Huron, or more properly Lake Michigan + Lake Huron, 22,500 cubic feet per second, becomes, in depth for the whole surface of the lake, 67.02 inches, as given in table 1, line 13, for Michigan + Huron.

The surplus of 28.1 inches from Lake Superior when distributed over Michigan + Huron becomes $28.1 \times \frac{31800}{45600}$, or 18.75 of an inch in depth. The total supply of Michigan + Huron is 50.95, adding the inflow, 18.75, and subtracting the evaporation, 21.60, we have an available surplus of 48.10. The measured outflow, 67.02, exceeds this in about the same ratio as for Lake Superior.

ERIE.

Assuming that the surplus from Michigan + Huron, increased by the annual supply minus the evaporation for Lake St. Clair, is the total annual inflow into Lake Erie, we have to spread the sum of these two items over the area of Lake Erie. The two items of inflow are respectively :

From Lake Michigan + Huron.....	$48.75 \times \frac{45600}{10000}$,	or 221.4
From Lake St. Clair..... ...124.0	$\times \frac{485}{10000}$,	or 6.14
Total inflow.....		227.54

This inflow into Lake Erie, added to its total supply, and diminished by the annual evaporation, gives an available surplus of 263.5 inches in depth.

The measured outflow from Lake Erie is 250,000 cubic feet per second, with a large uncertainty, or 339.6 inches in depth annually, which as before is about 30 per cent. in excess of the computed available surplus.

ONTARIO.

The surplus from Lake Erie, 263.5 multiplied by the ratio of the areas, viz., $\frac{19900}{7450}$, gives 353.7 for the equivalent depth on Lake Ontario; this latter, increased by the supply, and diminished by the evaporation, gives 389.1 as the available surplus from Lake Ontario.

The measured outflow from Lake Ontario is given as 300,000 cubic feet per second, or 547.0 inches in depth per year. This again is over 40 per cent. in excess of the available surplus.

IN GENERAL.

We thus see that through the whole chain of lakes our computations of possible normal available surplus per annum, computed for estimated values of the normal annual rainfall and evaporation, and very crude estimates of the run off from the watersheds, have invariably given values that are decidely too small as compared with the measured outflow. It is very hazardous to speculate on the reason for this systematic discrepancy. If there is any truth in the measured outflows, rainfalls and evaporations, then we must attribute the discfepancy to our ignorance of the percentage of run off from the watersheds. But as the evaporation is only estimated and has not yet been measured there is at present no need of suggesting new hypotheses, such as underground springs, to explain the discrepancy.

We might diminish the estimated loss by evaporation by 10 per cent. and increase the rainfall by 10 per cent. and diminish the measured outflow, on the assumption that it relates to special years and not to normal values. In fact, the whole computation ought to be made for the specific years for which we have measured outflows and rainfalls.

It will be worth while to repeat all the preceding computation on the assumption that the precentage of the run off is 50 in place of 25. Of course, the agreement between surplus and outflows is in general much improved, but whether this is a correct step toward the solution of the difficulty can only be determined when we have accumulated much better and more numerous observations than we now have. It is safe to conclude that the meterological data as to rainfall are at present more accurate than the engineering data i. e., evaporation, run off, inflow and outflow.

With regard to the specific question as to the influence of the canal at Chicago, as planned by the Sanitary Commission, I find that the engineer, L. E. Cooley, on page 361 of the first report of the I. D. W. A., accepts 10,000 cubic feet per second as the probable outflow at Chicago. The effect of this outflow an the general level of Lake Huron plus Michigan will, of course, be $\frac{10000}{225000}$ by the present outflow, which is 67.02 linear inches in depth annually; the result is 3 inches, so that the future outflow will be 70 instead of 67 inches. The effect of this upon the depth of water of Michigan plus Huron, and on the outflow of Lakes St. Clair, Erie and Ontario, will be barely appreciable and of no practical importance whatever, in comparison with the uncertainty, the variability, and the great importance of the rainfall and evaporation. This slight drain upon Lake Michigan will undoubtedly be supplied by Lake Superior and Huron, without affecting the surface level of St. Clair or Erie by more than a small fraction of an inch.

The deepening of the channel through St. Clair and Detroit rivers will diminish the resistance to the flow of water, so that more will pass per second than before, provided "the head of water," namely, the difference in level between Huron and Erie, remains the same; but this will not be the case. The effect will be felt at first mostly in the very center of the channel, and the total annual discharge will at first be a little, namely, much less than 1 per cent. more than at present; it may increase from 230,000 to 232,000 cubic feet per second, or from 67.00 to 67.6 inches per annum, but the final result will be the same as if we opened a wider and easier cammunication between the two lakes, and they will come to the same level and act as one lake, just as Huron and Michigan do now. Therefore, it is that we have given a computation for the three lakes combined.

As the influence of these two proposed engineering improvements on the regime of the lake is so small compared with that of the natural forces at work, it is evident that it is especially important to accumulate and improve the climatological data, rainfall and evaporation, barometric pressure, and winds, all of which affect the supply and the outflow. These are vastly more important to the general public than are the local engineering projects, and the latter may be prosecuted without fear of disturbing the natural status of affairs.

CANDIDATE FOR OFFICE.

The following item has gone the rounds of a number of lake dailies, but the author of the story is not known.

"Though Duluth-Superior has been active in the councils of the Lake Carriers' Association ever since the formation of the organization, it has never yet been honored by the presidency. For that matter, Toledo, Milwaukee, Bay City, and several other ports have not felt the weight of that distinction either. Buffalo has had it only once, and Chicago but once; Detroit has had it twice, and Cleveland three times. However, Duluth-Superior has buckled on a pair of skates and is going after the prize. Her candidate is Capt. Alexander McDougall, the inventor of the famous whaleback, to build which a mammoth steel shipbuilding plant now stands at the Superior end of the port. Capt. McDougall is as enterprising a man as the association carries on its list of members, and he has ideas to burn on all subjects. He is a plain, homespun hustler, who stands well with vessel owners generally, and he is now being put forward by several wealthy and influential vessel owners and managers, some of them from other ports than Duluth-Superior. From now on they are going to "tout" him as the best man for the place, which is purely honorary, and it is certain that any other candidates will find themselves up against a hard man to beat. J. S. Dunham, of Chicago, is the present incumbent. The holder of the office is limited to one term."

DETROIT MARINE POST OFFICE.

LETTERS REMAINING ADVERTISED IN DETROIT, MICH., POST-OFFICE AUGUST 11, 1898.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Austin, J. O.
Burtraron J. H., Barge Williams
Bennett, B. J., Str. Davidson
Bessey Robt., Str. Saranac
Bickel John S.
Cass Edward, 2, Str. Fay
Campbell Malcolm
Cloud Roy M.
Cassity Charles
Dolley Frances K.
Dickson H. G.
Davidson John
Edwards Percy, Str. Carnegie
Forman Oscar
Finna Earnst, Str. Waldo
Fleming Wm J., Str. Pickands
Hallman Albert
Higgins T. F.
Hemrick Charles
Hanson Henry, Sch. Bliss
Hopwood Edward
Kaiser Anthony, Str. Pickands
Kœhler Berthold
Leslie Arthur W.
Lavely John
Marsden Soloman
Miner Archer, Str. Empire City
Morrande Joseph, Str. Senator
McKinnon Frank, Str. Glasgow
Norton Patrick
Peltier Edward, Sch. Voges
Petrie Frank
Robinson Walter, Str. Northern Light
Riffenburg David
Reed W. O., 2
Ramesbottom John, Str. Tampa
Shingledecker Clarence
Shendon Henry F, Str. Empire City
Schrant Edward
Scobie Charles
Summer C. W.
Smith Ambrose
Sisson F. A.
Thomas W. R., Str. Rust
Vreeland Daisy
Warner F. H., Str. Watt
Warner Chas.
Walle Martin

F. B. DICKERSON, P. M.

IT is not probable that the revenue cutters Algonquin, Gresham and Onondaga will ever be returned to the lakes, as the expense would be too great. "In my opinion," said an officer of the revenue cutter service, "the Algonquin will never be stationed at Detroit. The expense incurred by the government in shipping this cutter and others from the lakes to the seacoast has been enormous, and to again send them back over the same journey would entail an outlay sufficient to build a new cutter. This matter has not yet been formally discussed, but the outcome will probably be that Congress will provide appropriations for building new cutters which will be stationed at Detroit and Milwaukee and other lake ports.

TREASURY DECISIONS RELATING TO NAVIGATION AND MARINE INTERESTS.

WAR TAX ON CHARTER PARTY APPLICABLE ONLY TO REGISTERED VESSELS.

TREASURY DEPARTMENT, August 3, 1898.

To Collectors of Customs and others:

You are advised that the tax imposed by Schedule A of the war-revenue act on charter parties is applicable only to registered tonnage in the foreign trade, either American or foreign, and does not apply to enrolled or licensed tonnage.

O. L. SPAULDING, Acting Secretary.

CANADIAN VESSELS.

Fees chargeable for permits to Canadian vessels.

TREASURY DEPARTMENT, August 1, 1898.

Sir: In reply to your letters of the 12th and 26th ultimo, respectively, inquiring whether a fee of $2 must be charged for granting a permit for a Canadian vessel to proceed to Superior from your port, the vessel leaving Duluth, light, or having on board part of a foreign cargo, you are informed that a fee of 10 cents only is chargeable in such cases, as provided for by the act approved July 5, 1884.

Respectfully yours,
O. L. SPAULDING, Acting Secretary.

Collector of Customs, Duluth, Minn.

ADMEASUREMENT OF WHARF BOATS.

Wharf boats not to be documented need not be admeasured.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., August 1, 1898.

Sir: Referring to your letter dated the 28th ultimo, this office has to state that wharf boats not documented need not be measured, and that no enrollment or license need issue to barges without steam or sail, plying on rivers of the United States, not engaged in trade with contiguous foreign territory, and not carrying passengers. You will notice that the laws governing the matter make the documenting depend on the locality in which the barges are employed. In framing your inquiry you apparently forgot to state where the barges to which you allude are navigated.

Respectfully yours,
E. T. CHAMBERLAIN, Commissioner.

Surveyor of Customs, Evansville, Ind.

REFUND OF WAR TAX.

Refund tax on manifests of cargo on Great Lakes.

TREASURY DEPARTMENT, August 2, 1898.

Sir: This department is in receipt of your letter dated the 28th ultimo, requesting instructions as to the disposition to be made of the sum of ten dollars ($10), stated to have been erroneously collected by you in the case of the British steamer Myles, for "entrance from and clearance to foreign port."

The department understands that the steamer was plying between ports in the United States and ports in Canada, and that the amount was collected under the provisions of Schedule A of the war-revenue bill approved June 13, 1898, for "manifest for custom house entry, or clearance of the cargo of any ship, vessel or steamer for a foreign port," there having been no internal revenue stamps used.

If this understanding is correct, you may refund the sum to the person entitled to receive, on the return to you of your receipt, and the amount may be omitted from your report, the paragraph of the law quoted not being applicable to cases in which vessels ply as above mentioned.

Respectfully yours,
O. L. SPAULDING, Acting Secretary.

Collector of Customs, Erie, Pa.

CAPACITY OF VESSELS.

Capacity of vessels to be stated in whole numbers.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., July 28, 1898.

Sir: In reply to your letter, dated the 6th instant, you are informed that the points you raise as to the tonnage of vessels are all covered by the general instructions of April 25 last, of which copies were forwarded to you, stating that the tonnage of spaces, including fractions, should be added in ascertaining gross tonnage, etc.

In the case of the Metha Nelson you mention, the figures are 460.08, less 60.82, equaling 399.26 net; and in the case of the Newberg, also mentioned by you, the figures are 450.39, less 117.16, equaling 323.23 net.

The regulations state merely that in entering the gross and net tonnage in the marine documents the capacity of the vessels shall appear in whole numbers. The bureau fails to find any difficulty in making the capacity so appear, or any ground for your statement that "in many instances, if a universal rule is followed, there will be a difference of one ton between the net tonnage as expressed in the marine document and that carved on the main beam." Such a difference can exist in no instance, if the regulations are observed.

Respectfully yours,
E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, San Francisco, Cal.

BILLS OF LADING.

Duty of the carrier to furnish the shipper a stamped bill of lading or a receipt—As to remedy in case of refusal.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER OF INTERNAL REVENUE,
WASHINGTON, D. C., August 1, 1898.

Sir: Your letter of June 30 to the Secretary of the Treasury was by him referred to this office for reply. An enormous pressure of similar inquiries has hitherto prevented consideration of your letter.

You ask as to whose duty it is to pay the expense of the stamp required for bills of lading or receipts given by common carriers.

I answer that the carrier who accepts merchandise for transportation is required to furnish the shipper a stamped bill of lading or receipt therefor. If he fails to do this, he incurs criminal liability; but if he refuses to accept the goods for transportation, except on condition that the owner or shipper shall pay the sum necessary to purchase the stamp or stamps, in addition to the customary charge for the transportation, the war-revenue law provides no remedy, nor does any internal-revenue law. It would seem that, in such cases, the aggrieved parties must depend upon the common or statute law of the State, defining the obligations of common carriers.

Respectfully yours,
N. B. SCOTT, Commissioner.

MR. N. B. KELLY,
Freight Commissioner, Trades League, Philadelphia, Pa.

ADMEASUREMENT OF VESSELS.

Admeasurement of vessels otherwise than at the home port.

TREASURY DEPARTMENT,
BUREAU OF NAVIGATION,
WASHINGTON, D. C., July 29, 1898.

Sir: This office is in receipt of your letter dated the 22nd instant, submi ting an inquiry as follows:

"Has the owner of a vessel built in this district, the owner residing in this district, the vessel hailing from this port, the right to have said vessel admeasured in another district, the vessel getting temporary license at the port where admeasured?"

If a vessel is new, and in your district, she may proceed to another district without admeasurement, as provided for in article 17, regulations of 1892. If she is new and in another district, she may be admeasured there, and be granted papers as contemplated by article 20. If she is not new, but has been changed in tonnage, and is in a district not her home district, she may be admeasured in the district first mentioned, as contemplated by the regulations.

You will notice that you failed to specify the essential facts in the case you present.

Respectfully yours,
E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, Beaufort, N. C.

WAR TAX ON CHARTER PARTY APPLICABLE ONLY TO REGISTERED VESSELS.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C., August 3, 1898.

To Collectors of Customs and others:

You are advised that the tax imposed by Schedule A, of the War Revenue Act on charter parties is applicable only to registered tonnage in the foreign trade, either American or foreign, and does not apply to enrolled or licensed tonnage. Following is the opinion of the Hon. Attorney-General:

O. L. SPAULDING, Acting Secretary.

DEPARTMENT OF JUSTICE,
WASHINGTON, D. C., August 2, 1898.

To the Honorable, the Secretary of the Treasury.

Sir, I have the honor to acknowledge the receipt of yours of July 9th ultimo, enclosing a letter of the Commissioner of Internal Revenue of July 8th, relative to the construction of that part of the War Revenue Act under the head of "Charter Party."

You request an opinion on the question presented in the letter of the Commissioner, which is as follows:

"In regard to that paragraph of the Revenue Act of June 13, 1898, relating to 'Charter Parties,' the language is as follows:

'"Charter Party." Contract or agreement for the charter of any ship, or vessel, or steamer, or any letter, memorandum, or other writing between the captain, master, or owner, or person acting as agent of any ship, or vessel, or steamer, and any other person or persons, for or relating to the charter of such ship, or vessel, or steamer, or any renewal or transfer thereof, if the registered tonnage of such ship, or vessel, or steamer does not exceed three hundred tons, three dollars.'

It is claimed that vessels engaged in domestic commerce are exempt from this requirement as the law does not require that their tonnage should be registered."

It is as to this question, therefore, that an opinion is requested.

I have recently, at the request of the Commissioner of Internal Revenue, in response to an inquiry by the Lake Carriers' Association, given a memorandum of opinion as follows:

"The law as found in the Revised Statutes, Title XLVIII, the regulatiou of commerce and navigation, providing for the registry and recording of vessels, applies to such vessels as are required to be registered; and the law in Title L. R. S., regulation of vessels in domestic commerce, provides for the enrollment of vessels.

Under Title XLVIII, registered tonnage comprises the tonnage of vessels of the United States employed in foreign trade, or the whale fisheries, and under Title L, enrolled tonnage comprises the tonnage of vessels employed in domestic trade and in trade on the Great Lakes with Canada, over 20 tons, those under 20 tons of this class being termed, 'licensed vessels.'

I am of the opinion that the clause of the War Revenue Act under consideration, applies only to vessels registered under Title XLVIII, and does not apply to vessels enrolled or licensed under Title L. I think the purpose of the law was to make this distinction because of the fact that the vessels enrolled and licensed under Title L are engaged in domestic transportation, and it would be a palpable discrimination against them in favor of other methods of domestic or inland transportation, to require the tax provided for under the paragraph cited. When the term 'registered tonnage' was used in the act, it could mean, in my opinion, nothing more than to apply the law to such vessels as are required by law to be registered. It is a technical term, and applied to a particular class of vessels, known as registered vessels, in distinction from enrolled vessels and licensed vessels."

Upon a further examination of this question I feel fully convinced that the foregoing is the correct interpretation and construction of the provision of the War Revenue Act referred to, I am strengthened in the position that the law makes the distinction before stated, between vessels of registered tonnage and enrolled vessels, because of the fact that our law, in addition to the registration of vessels of the United States, as provided in Title XLVIII, makes provision by which the registered tonnage of foreign vessels coming into our ports shall be made to conform to that of our own vessels.

By the act of August 5, 1882, (22, Stat. L., Ch. 398, p. 300, Sec. 2,) the following was substituted for section 4154 of the Revised Statutes, which was repealed:

"Sec. 4154. Whenever it is made to appear to the Secretary of the Treasury that the rules concerning the measurement for tonnage of vessels of the United States has been substantially adopted by the government of any foreign country, he may direct that the vessels of such foreign country, be deemed to be of the tonnage denoted in their certificates of register or other national papers, and thereupon it shall not be necessary for such vessels to be remeasured at any port in the United States; and when it will be necessary to ascertain the tonnage of any vessel not a vessel of the United States, the said tonnage shall be ascertained in the manner provided by law for the measurement of vessels of the United States."

This places foreign vessels coming into our ports upon precisely the same footing as American vessels in respect to registered tonnage, and would subject contracts or agreements for charter made in this country in respect to such foreign vessels, to the same tax as such contracts or agreements made or entered into for the charter of American vessels.

Very respectfully,
JAS. E. BOYD,
Asst. Att'y-Gen'l.

Approved:
JOHN W. GRIGGS, Att'y-Gen'l.

SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset by reversing the east bearings given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting:

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Sunrise.	Bearing.	Bearing.
August 13	E. 20° N.	E. by N. ¾ N.
August 16	E. 19° N.	E. by N. ⅝ N.
August 18	E. 18° N.	E. by N. ⅝ N.

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Sunrise.	Bearing.	Bearing.
August 13	E. 20° N.	E. by N. ¾ N.
August 16	E. 19° N.	E. by N. ⅝ N.
August 18	E. 18° N.	E. by N. ⅝ N.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing.	Bearing.
August 13	E. 21° N.	E. by N. ⅞ N.
August 16	E. 20° N.	E. by N. ¾ N.
August 18	E. 19° N.	E. by N. ⅝ N.

LAKE SUPERIOR, LAT. 48° N.

Sunrise.	Bearing.	Bearing.
August 13	E. 22° N.	E. N. E.
August 16	E. 21° N.	E. by N. ⅞ N.
August 18	E. 20° N.	E. by N. ¾ N.

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied, will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

A GHOULISH JOB.

The steamer Hiawatha, which left Halifax July 20, to search for bodies of the La Bourgogne victims has returned to Halifax and reported that the steamer went to the place where the captain of the steamer Oldfield reported he saw 200 of them floating. No bodies were found in this locality but a few miles further away the first body was found. During that day, Sunday, and succeeding days until Aug. 3, the members of the expedition worked continuously. During that time 31 bodies were found. Those found on the first day were in a fair state of preservation. Those found later were advanced in decomposition. Nearly all were bodi of steerage passengers or sailors. Most of the bodies w men, a few were women and some boys. All the bou were buried at sea in the usual manner. There was hardly anything about the female bodies to aid identification. Only one or two were those of first-class passengers.

CORRESPONDENCE.

☞ We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

COURSES LEADING INTO DANGER.

Special Correspondence to The Marine Record.

It has been the misfortune of lake captains of being frequently imposed upon in nautical matters, because of lacking a thorough knowledge of sailing by chart, log, lead and compass. Sham articles of all kinds relating to lake navigation, have been palmed off on them for years, among which the old lake charts on conical projections, still in use for want of better ones, on a large scale, are most conspicuous. The impossibility of finding correct courses by these charts with any degree of precision, has prompted enterprising people, ignorant of the first principles in navigation, to supply this want, of which the corrected compass courses, recently prepared by somebody connected with lake shipping, are in evidence. The following are a few literal specimens :

CORRECTED COMPASS COURSES.

Lake Huron.	Course.	Miles.
Fort Gratiot to Sand Beach.....	N. ⅝ W.	58½
Sand Beach to Thunder Bay....	N. by W. ½ W.	87½
Thunder Bay to Presquile.....	N. W. by N. ¾ N.	26½
Presquile to Forty-Mile Point....	N. W. by W. ⅝ W.	47
Thence Cheboygan light..... ..	West	8

Corrected compass courses may be courses corrected for deviation, or courses by corrected compasses, or courses corrected for leeway and the like, consequently courses of indefinite description. But from the distances furnished, it appears, that the above courses are to represent magnetic courses for the Fort Gratiot–Cheboygan route, and as such, they are courses most dangerous for vessels to sail by, as will be seen presently.

Taking the variation from pilot chart No. 1415, published 1894, and applying the correction of 0.2 degrees for four years, the variation is found to be, at Fort Gratiot, 2.4 degrees ; at Sand Beach, 2.8 degrees ; at Thunder Bay Island, 2.7 degrees ; at Presquile, 2.4 degrees ; at Forty-Mile Point, 1.3 degrees ; all being west. As the chart referred to is on too small a scale for our purposes, figuring by latitude and longitude has been resorted to, in order to obtain correct results. The reckoning therefore, is as follows :

1. FROM FORT GRATIOT TO SAND BEACH.

N. ⅝ W. magn., 58.5 stat. m. = 50.9 naut. m.
Mean variation ¼ W.
Course run N. ⅞ W. true. Diff. of departure 8.8 W.

Diff. of Lat.	0° 50.2′ N.	Diff. of Long.	0° 12.1′ W.
Lat. left	43 0.4 N.	Long. left	82 25.6 W.
Lat. in	43° 50.6′ N.	Long. in	82° 37.7′ W.
Sand Beach Lat.	43 50.8 N.	Long.	82 38.2 W.

Vessel from Sand Beach Light 0.2 S. and 0.5 E.
= 0.2 stat. miles = 0.4 stat. m.

Pricking off on the chart the place the vessel is in, and drawing a straight line from it to Fort Gratiot, it will be found, that the course N. ⅝ W. magnetic, leads over the rocks and ledges between Forestville and Sand Beach, and consequently every vessel following this course in thick weather, will get stranded long before reaching Sand Beach.

2. FROM SAND BEACH TO THUNDER BAY ISLAND.

Starting from a point E. magnetic 1.7 statute miles = 1.5 nautical miles off Sand Beach eastern main light, on the course N. by W. ½ W. magnetic 87.5 statute miles = 76.1 nautical miles we have :

Magnetic Course	Mean Var. Points	True course Points	Dist. Naut.M	N.	S.	E.	W.
E.	¼ W.	N. 7¾ E.	1.5	0.1		1.5	
N. by W. ½ W.	¼ W.	N. 1¾ W.	76.1	71.7			25.6
				71.8		1.5	25.6
							1.5
							24.1

Diff. of Latitude 1° 11.8′ N. Diff. of Longitude 0° 33.8′ W.
Latitude left 43° 50.8 N. Longitude left 82° 38.2 W.
Latitude in 45° 2.6′ N. Longitude in 83° 12.0′ W.
Thunder Bay Island Light 45° 2.3′ N. 83° 12.1′ W.
Vessel from Light 0.3′ N. and 0.1′ E.

From which it is evident that the course N. by W. ½ W. magnetic hits nearly the light-house on Thunder Bay Island, and that vessels following this course in thick weather will run on the spit SE. from the light, and consequently get stranded again.

3. FROM THUNDER BAY ISLAND TO FORTY-MILE POINT.

Starting the vessel anew E. magnetic, 1.7 statute miles = 1.5 nautical miles off Thunder Bay Island light, on the courses N.N. W. ¼ W. magnetic, 26.5 statute miles = 23.0 nautical miles; and N.W. by W. ⅝ W. magnetic, 39.4 statute miles = 34.3 nautical miles, the following will show the result:

Magnetic Course.	Mean Var. Points.	True Course. Points.	Dist. Naut. Miles	N.	S.	E.	W.
E.	¼ W.	N. 7¾ E.	1.5	0.1	....	1.5	....
N. N.W. ¼ W.	¼ W.	N. 2½ W.	23.0	20.3	....	....	10.8
N.W.byW.⅝W.	⅛ W.	N. 6 W.	34.3	13.1	....	....	31.7
				33.5	....	1.5	42.5
							1.5
							41.0

Diff. of Latitude 0° 33.5′ N. Diff. of Longitude 0° 58.3′ W.
Latitude left 45° 2.3 N. Longitude left 83° 12.1 W.
Latitude in 45° 35.8′ N. Longitude in 84° 10.4′ W.
40 Mile Pt. Lt. 45° 38.2 N. 84° 12.5 W.
Vessel from Light 2.4 S. and 2.1 E.
=2.7 statute miles. =1.7 statute miles.

From these figures it is evident that even by a correct start at Thunder Bay Island the courses will strike the shore between Hammond Bay and Forty-Mile Point, and produce stranding of the vessel in thick weather the third time.

With three strandings certain to occur in thick weather by the "corrected compass courses" on the route from Fort Gratiot to Cheboygan, vessel owners and insurance men will reap a rich harvest, so much more abundant as the probability of stranding by the "corrected compass courses" on other routes, is likely to be as great as by the present showing.

JOHN MAURICE,
Civil Engineer and Nautical Expert.

Chicago, Aug. 9, 1898.

LAKE PASSENGER TRAVEL.

All the passenger boat lines out of Chicago report a large increase over last year in tourist business to lake resorts. The Chicago & Northwestern, too, reports a large travel to Wisconsin points, and the general indications are that this year's tourist business is confined to shorter journeys than in other years. The war, it is said, is largely responsible for this condition. At the beginning of the season many persons declared that they would not visit the Atlantic coast this summer, and although the fear of Spanish gunboats has long since passed away, the coast resorts have suffered some losses from the war scare. The Great Lakes are beginning to attract many visitors from distant parts of the country. This summer a large number of Southern people have gone out on the steamers, and tourists from Louisville and Cincinnati and from the southern part of Illinois have been numerous. The same may be said of all other lake ports and the travel is still increasing, with a likelihood that it will continue until the close of the heated term.

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	432,000	738,000	303,000	11,000	168,000
Chicago	806,000	6,822,000	791,000	106,000	....
Detroit	75,000	62,000	1,000	22,000	.....
Duluth and Superior	762,000	2,061,000	29,000	90,000	43,000
Milwaukee	50,000	.....	.....	2,000	8,000
Montreal	54,000	70,000	813,000	17,000	26,000
Oswego	.....	.....	.....	.....	.....
Toledo	204,000	218,000	46,000	27,000	.....
Toronto	17,000	.....	12,000	.....	.....
On Canal	33,000	421,000	52,000	.....	20,000
Grand Total	8,254,000	17,920,000	3,352,000	437,000	298,000
Corresponding Date, 1897	17,650,000	16,511,000	6,551,000	1,632,000	831,000
Increase	.....	345,000	.....	132,000	.....
Decrease	839,000	.....	88,000	.....	45,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

VESSELS CLASSED.

Vessels classed or rated this week by the American Shipmasters' Association in the "Record of American and Foreign Shipping :" American S. S. Newport, owned by the Pacific Mail S. S. Co.; American schooner, Joseph Hay, American half brig, Irene, owned by Yates & Porterfield, of New York, and British Tern, Grace Rice.

SAIL VESSEL AND BARGE OWNERS.

All American sail vessels carrying passengers, of whatever tonnage, and all sail vessels of over 700 tons, must receive an annual inspection at the hands of the United States steamboat inspectors on or after July 1, 1899, if the President approves of an act of Congress providing therefor that has passed both branches of Congress. The masters and chief mates of said vessels of over 700 tons, and of barges in tow of steamers on the Great Lakes alone, it provides, must secure from the United States steamboat inspectors licenses permitting them to act as such before the first of next July, if this bill becomes a law.

The inspection of these sail vessels will be an additional guaranty to shippers that the vessels are seaworthy, and, if the inspection is of any value, it will be shown in a reduction in insurance rates on such vessels and their cargoes with a corresponding increase in their opportunities for securing profitable cargoes. Masters and chief mates of sail vessels inclined to brutality will be greatly restrained hereafter, and in this respect the passage of the bill is a great gain to American shipping.

Upon proof of "bad conduct" on the part of such licensed officers—and they must all be licensed—the inspectors are authorized to revoke or suspend their licenses, which revocation or suspension prevents the officers so disciplined from acting as either masters or chief mates during the period of such suspension. Charges can be made, a hearing held and decisions rendered in such cases much more promptly than by present court proceedings, and while seamen are still in port and able to testify.

THE WORLD'S LARGEST WOODEN STEAMER.

A remarkable blending of what is newest in modern marine engineering practice, with what most shipbuilders and owners in this country would consider thoroughly obsolete is exemplified in the American steamer Thomas Cranage, recently built on Lake Michigan, and now doing freight service on the Great Lakes. This consists briefly in triple-expansion engines using steam at 160 lbs. pressure, being fitted into a splendid ship 330 ft. long by 43 ft. broad, built almost entirely of wood ! This vessel is probably the largest wooden steamer in the world, her hull being of Michigan white oak throughout, except the white pine deck planking. Steel is used to a limited extent for the purpose of tying the framework. A belt of steel 14 in. by ⅞ in. is carried round the heads of the frames, and two similar belts are fitted from about midship to run diagonally to the heel and the forefoot of the vessel respectively. The tonnage of the vessel is 2,200 tons gross, and 1,856 tons net, and the displacement is 4,000 tons. She carries 3,050 tons of iron ore on a draught of 16 ft. 8 in., or a cargo of 110,000 bushels of wheat on a draught of 16 ft. 6 in. Her triple-expansion engines, with cylinders of 20 in., 33 in., and 54 in. by 42 in. stroke, drive a single screw ; a feature of some novelty—though of doubtful efficiency—being a universal coupling which connects the crank and thrust shafting to the propeller shaft. The engines and boilers are placed well aft, as in most Lake cargo steamers, the boilers—two in number—being of the Scotch pattern, 14 ft. diameter and 12 ft. long, carrying, as has been stated, a pressure of 160 lbs. per square inch. The vessel, it is said, has a regular sea speed of 13½ knots, and a maximum of 14 knots per hour. — Marine Engineer London.

A MARINE DISPLAY.

The Superior Boat Club, Superior, Wis., is making preparations to celebrate the successful closing of the war by a Venetian fete, to be given on Superior bay the night of the 17th of August. A committee of citizens has been appointed to represent the city, and this committee, in conjunction with the boat club, will extend an invitation to the neighboring cities to attend the fete. The great success of the one given last year warrants the people of Superior in anticipating a large attendance from outside cities. Reduced fares will be secured on all railroads to the head of the lakes. The American Steel Barge Company, the tug companies, the private boat clubs, indeed all persons owning or controlling craft in those waters, have promised to take part and a sufficient number of boats have already been programmed to make a parade over four miles long. A large quantity of fireworks, calciums, Chinese lanterns, etc., have been ordered by the boat club and these will be used lavishly in decorating the boats. One feature the committee has determined upon, one that will perhaps be the most striking of the parade, will be an immense sham naval battle. Five barges have already been secured for this purpose.

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THE American Iron and Steel Association reports that the output of pig iron in the first six months of the present calendar year reached 5,909,703 gross tons, the largest amount ever produced in this country in a similar period. Pennsylvania takes the lead with 2,767,549 tons; Ohio follows with 1,038,951 and Illinois comes next with 666,580 tons. The production in six months was 226,374 tons greater than the entire output in the year 1886 and that was regarded as a remarkable record.

THE delay in making public the report of the Erie Canal Commission, which was presented to the Governor of New York late Saturday afternoon, is due to the fact that it contains 70,000 words and can be handled only by mail. An abstract of 3,500 words has been made of the report by the commission, but it will not be made public until the full report is given out, so that there can be no possibility of criticising the abstract as being in any way partisan. It is expected that the report will be given to the press before the end of the week.

THE Commissioner of Internal Revenue has rendered a decision relative to the construction of that part of the war revenue act, under head of "charter party," based upon an opinion of the Attorney-General, in which it is held that the tax is imposed only upon vessels engaged in foreign trade, and does not apply to vessels employed in domestic trade and trade on the Great Lakes with Canada. As the word "registered tonnage" is used in the war revenue act, it is held that it relates only to vessels required to be registered in distinction from enrolled vessels and licensed vessels.

WHERE our internal interests have been served by railroad and lake transportation, no money was begrudged or energy spared to secure the best means of transit of persons or freight. We have thereby built up a system of railroads that has practically networked our entire domain. In canal and other waterways the national hand and personal enterprise has been tireless, and we have an inland fleet that in numbers and tonnage, and in water carriage of freight has no equal in contemporaneous history. This has taken time and money. Capital has sought the land rather than the sea, and public attention and interest has been focussed on developing our native resources rather than on ocean supremacy. Economic causes rather than alien cupidity has brought about what seems to be the great paradox of selling more goods than we could ship in American bottoms, and having a merchant marine that in a world-wide and commercial sense, stands like a pauper by the side of a prince. We have produced faster than we can carry. This has brought our shipping interests to the front, and henceforth it will be a matter of vital and national importance to remedy an evil the extent of which was not known till the hour for a supreme effort had come.

TO ADJUST THE BOUNDARY LINES.

Among the matters to be considered by the joint commission appointed by the United States and Great Britain, which is to meet in Quebec, are arrangements for the more complete definition and marking of any part of the boundary line between the United States and Canada, by land or water, where the same is now so insufficiently marked as to be a subject of dispute.

A considerable part of the boundary from the eastern part of Lake Ontario to the western end of Rainy Lake, on the northern frontier of Minnesota, has never been accurately defined or marked, and frequent controversies have been the result, especially in recent years, since the country adjacent to the boundary has begun to be settled and developed. American miners and prospectors on the shores and islands of the Rainy Lake region have had their operations interrupted and prevented on like grounds, and American fishermen in Lake Erie have been arrested and the vessels seized, when as they supposed and contended, they were in American waters.

In the fifty-fourth Congress the committee on foreign affairs of the House of Representatives investigated these matters, and reported, with a favorable recommendation, a joint resolution for the appointment of a commission on the part of the United States to act jointly with a similar commission on the part of Great Britain to define and mark the boundary as conventionally determined by the treaty of Ghent and the Webster-Ashburton treaty of 1842. No action was had on the joint resolution. Among the papers submitted to the committee on that occasion was an interesting report prepared by Assistant Secretary Adee, of the State Department.

In relation to the portion of the boundary which crosses Lake Erie, Mr. Adee reported:

The Ghent map of Lake Erie is extraordinarily imperfect in contour and inaccurate in dimensions as to all that part lying between the entrance to the Niagara river and Point Pelee. It appears from a note thereon that the part west of Point Pelee and Sandusky, including all the islands, was reduced from the actual survey made by order of the commissioners and a separate chart of the lake, westward of Point Pelee, showing the triangulations and duly signed, is embraced in the Ghent series.

The same foot note further states that "The other parts of the lake (except the entrance into the Niagara river) are reduced from such printed maps as were supposed to be the most accurate."

That the commissioners were misled in their estimate of the accuracy of the sources from which their map was compiled is evident upon si nple measurement.

In that part opposite Long Point, referred to in the committee's letter of Jan. 17, as a probable field for dispute, the distance from the northwesterly point of Presque Isle, near Erie, Pa., to the southern extremity of Long Point, is found by the scale drawn upon the map itself to be about 37¼ geographical miles, while upon the accurate modern maps, reduced from surveys made by the army corps of engineers and published by the hydrographic office, the same distance is in fact a trifle less than 23 miles.

This circumstance makes determination by measurement from either shore to the delineated boundary of the Ghent map impossible, for the distance so measured would overlap some 14 miles in the middle of the lake. Neither is an approximate reproduction of the Ghent line upon a modern map feasible, owing to the variations in the contours of the shores between which it must be drawn. This circumstance alone makes the exact determination of the chartered treaty boundary in Lake Erie at either end impossible; only an approximate location can be determined. The original chart of Lake Erie, like that of Ontario, is unsigned by the commissioners. It may, therefore, be properly said that, as the main body of these two lakes, there does not exist a chartering of the boundary having the force and value of treaty.

The commissioners appointed under the treaty of Ghent did not undertake to define or mark that part of the boundary between the St. Mary's river and the Lake of the Woods, and a part of it has never been charted. Respecting the latter, Mr. Adee wrote:

"Westward of Isle Royale, in Lake Superior, no reproduction of the working maps of the Ghent commissioners has been made, but, as above said, they only drew the extreme westerly portion of the northern boundary from Chaudiere Falls to the north-westerly shore of the Lake of the Woods. As to that part between Isle Royale and Chaudiers Falls, where no line has as yet been charted by joint agreement of the two countries, we are dependent upon the description given in article 2 of the treaty of 1842."

It is to be observed that Lac du Bois Blanc, named in the treaty, is indifferently called Basswood lake, a simple translation of the French name, the "Bois Blanc" being of the same species of tree as the basswood of the United States.

HIGHER SPEED FOR BATTLESHIPS.

A special from Washington says that the naval board of construction has decided not to make new designs for the battleships Maine, Missouri and Ohio, but recommend to Secretary Long that the bids for those vessels be opened September 1. This action was in response to a question propounded to the board a week ago by the secretary, who asked whether, in view of the criticisms which had been made regarding the speed of the vessels as originally designed, it might not be better to recall the circular issued to shipbuilders and delay the opening of bids after September 1 in order that new plans could be drawn.

This action by the board, while it apparently favors sixteen knot ships, in reality does nothing of the kind, but simply emphasizes the belief heretofore expressed by the majority of its members that shipbuilders should have an opportunity to declare whether they would be willing to guarantee a speed exceeding seventeen knots, which all but one of the members of the board are confident should be obtained under the original specifications. The only member who dissented from the decision reached was Engineer-in-Chief Melville, who submitted eleven complete plans of engines, exhibiting improvements upon those forced into the original ship through restrictions as to space and bulkheads.

Taking advantage of the opportunities offered to shipbuilders, by which they might submit alternative plans, keeping the same weights and general arrangement of space, Commodore Melville showed nine plans, all of which he guaranteed would give a speed exceeding 17.4 knots, with a reduction in some instances of 100 tons of coal, but at the same time securing a greater radius of action.

The engineer-in-chief also presented two designs, by which, with 600 tons added to the displacement of these vessels, he could guarantee eighteen knots' speed and a radius of 6,300 knots, with 1,200 tons coal capacity.

These plans will have further consideration, but the board determined that, as it would take several months to re-design the entire vessel, comparatively insignificant delay would occur if the bids were opened September 1, and the navy would be so much the gainer if contractors guaranteed high speed in the existing vessel.

If at that time the proposals were deemed unsatisfactory, new designs could be started and energetically completed. In any event, the board expressed determination to accept no vessel with less guaranteed speed than seventeen knots.

MARINE DOCUMENTS TO BE STAMPED.

A circular has been issued announcing that under the new war revenue act a 10-cent stamp must be affixed to the following named certificates required by law; supervising inspector's permit to towing steamer to carry persons other than crew; supervising inspector's permit exempting river steamers from carrying metallic lifeboats; certificates of license to carry gunpowder; certificate permitting steamers to go to another port for repairs; certificate of license to carry excursion party; certificate of license permitting the carrying of petroleum on passenger steamers; certificate of supervising inspectors as to safety of using petroleum as fuel on steamers; certificate of supervising inspectors as to safety of boilers not built of riveted iron or steel plate.

Original certificates of inspectors of steam vessels issued to chief officers of customs do not require a stamp.

DETROIT'S ENTRIES AND CLEARANCES.

The following figures show the number of vessels which cleared from Detroit from July 1, 1897, to June 30, 1898, together with the net registered tonnage:

Cleared for United States ports, 2,917; net tonnage, 1,099,252. Cleared for Canadian ports, 1,579; net tonnage, 260,238. Total clearances, 4,496. Total net registered tonnage, 1,359,490.

The following figures relate to the vessels which reported at this port during the same period: Vessels reported from ports in the United States, 2,770; net registered tonnage, 1,036,883. Reported from Canadian ports, 1,709; net tonnage, 208,914. Total number of vessels reported, 4,479. Total net tonnage, 1,245,797.

A BIG IRON ORE MINE DEAL.

Henry W. Oliver, president of the Oliver Mining Company, the Carnegie and Oliver iron ore combination, has just concluded the purchase at Duluth of the Pioneer and Zenith mines, on the Vermillion range, for a sum exceeding $1,000,000. This property will give the Carnegie company the choice of all the large mines in Minnesota, will practically make them independent of all markets and will insure them an adequate supply of ore for many years. The deal is considered the most important transaction that has taken place on the range in years.

The Pioneer mine is the more important of the two. It was bought by Dr. W. J. Conan, of Superior, Wis., and others in 1883, for less than $23,000, and in 1886 was leased to the Pioneer Iron Company for 20 years at 50 cents a ton royalty, with a minimum output of 20,000 tons a year. The mine has been operated constantly since then. Last year 207,103 tons were mined, making the total output 417,116 tons. The mine was closed down last December and the lesses endeavored to secure a reduction in the royalties to 30 cents a ton. Concessions were made that reduced the royalty to 40 cents on 75,000 tons and 35 on all above that quantity in one year. This was not satisfactory to the Oliver company and Mr. Oliver was unwilling to buy control of the Pioneer company unless an extension of the lease was made, as only nine years remained of the old lease.

The property was held in fee by W. J. Conan, Martin and William Pattison, of Superior, Wis., and R. Whitesides, of Duluth, and they demanded bonus to extend the lease. Mr. Oliver offered to pay a bonus of $400,000 for an extension of the lease 20 years, and a minimum royalty of 30 cents a ton on an annual output of 500,000 tons. The company is capitalized at $1,000,000 in $25 shares, and was owned by Oglebay, Norton & Co., Cleveland, who held 13,000-shares; Thomas Bardon, of Ashland, who was president and general manager and held 5,500 shares; J. B. Spooner, W. H. Phipps and J. A. Humbird, of Hudson, Wis., who controlled 16,300 shares; W. J. Conan, 4,000 shares, and J. G. Brown 1,200 shares. The stockholders of the lessee company were credited with having placed in the mine $250,000 more than their receipts for ore. It has been equipped with excellent hoisting and pumping plants, and is in good shape for a large output. A large compartment shaft is down about 1,000 feet and a good body of ore has been thoroughly opened up. The Pioneer product last year averaged nearly 65 per cent. iron and .036 per cent. phosphorus.

The ore deposit is very large and is estimated to contain from 10,000,000 to 20,000,000 tons of ore. It is a deep continuation of the Chandler's famous deposit. It is believed the Oliver company will now develop the mine and send out over 500,000 tons a year, or more than twice what it did last year.

The Zenith Ore Company was practically controlled by Frank Rockefeller and last year it produced 40,817 tons. It is expected the mine will be put in better shape, and that 50,000 tons can be yet taken out this season. The quality of the ore is excellent. Careful investigations have been made by the experts sent to the range by the Oliver company and the deposit is said to be of wide extent. It will probably be further developed, season after season, and become the best paying property on the range.

THE MANITOU'S DAMAGE.

It is now considered doubtful whether the fine passenger steamer Manitou will see further service on Lake Michigan the present season. Her engine has been found, upon close examination, to be in a much worse condition than was at first surmised, and rather than risk another breakdown in midlake with its attending inconveniences, almost entirely new machinery will be substituted. Chief Engineer Peck is quoted as saying: "The accident which happened to the Manitou under ordinary circumstances would only delay her a few hours until temporary repairs were effected. It just happened that a section of the splintered part fell where the revolving machinery struck it with disastrous consequences. While you counted five the ruin was completed."

The cost of supplying the Manitou with a new engine will probably foot up $30,000. Added to this will be the amount awarded the owners of the Algonquin for towing the passenger steamer into port. Officials of the company estimate that they will lose $20,000 through loss of patronage.

The side-wheel steamer State of Ohio has been chartered to take the place of the Manitou, and will take the latter's run next Saturday for Charlevoix, Harbor Springs and Mackinac Island. The entire crew and equipment of the Manitou will be transferred to the State of Ohio, excepting the engineer's department. It was but a week ago that the State of Ohio left Chicago, after running an opposition line to St. Joseph.

SHIPBUILDING AT WEST BAY CITY.

A special from West Bay City, Mich., quotes W. W. Huntington, representing the Bessemer Steamship Co., as authority for the following statement:

"There will be more boats built this wimter at Wheeler's shipyard than ever before, as our company has a year's lease of the plant. We have got to build several more boats this winter, and if we build them at our Superior yards we will have to enlarge the plant and add new machinery, which we will not have to do by using the Wheeler yard, which is the best equipped yard on the Great Lakes."

The above statement means a good deal for West Bay City and its merchants. The yard running full blast will give employment to 3,500 men daily, and the pay roll will amount to about $50,000 a week.

THE HEROES OF THE MANITOU.

Chief Engineer Peck of the disabled lake steamer Manitou, and his oiler, Arthur Sherman, are leaving praise to the passengers while they preserve a modest reticence about their share in averting disaster, yet, according to some accounts of the Manitou's accident, the engineer and the oiler stood between the passengers and shipwreck when their position was one to try the stoutest heart.

Owing to a break in a casting, one of these accidents that no caution, apparently, can prevent, a cylinder head was torn out of one of the Manitou's engines and a flying shaft began to churn the machinery to fragments and threatened to beat a hole in the ship's hull that would have wrecked her. The engine pit was filled with scalding steam and flying parts of machinery that promised death every second. Yet the engineer and the oiler stuck to their posts, shut down the unruly power, and saved the vessel from destruction.

Not all the heroes went to war. Such heroism as this deserves the deepest gratitude of those it saved, and awakens the pride of a people who can recogize valor, whether it be on the field of battle or in an engine room.—Chicago Journal.

DEEP WATER CANAL SURVEY.

The United States engineers engaged in gathering data along the St. Lawrence, are progressing rapidly. They are a lot of energetic, skilled, scientific men, and are keeping up the reputation of the United States Engineer Department for hard, efficient work.

Chief Engineer Molitor is in charge of one force of men operating toward St. Regis, while Engineer Blanchard is handling the second detachment, which is engaged on work nearer Ogdensburg. Considerable work, in the nature of obtaining levels, has been accomplished and a number of reference marks have been established.

Mr. Blanchard, who is an Ann Arbor, Mich., aluminus, is yet quite a young man, but has displayed such ability that he has been entrusted with very important work. He is the official recorder of the engineer division assigned to the territory between Cape Vincent and St. Regis.

Although the importance of the work of these engineers, and the immense possibilities of the proposed deep waterway, have not been fully realized, the people of Oswego and other towns along the possible alternative route, which may be used instead of the St. Lawrence, are wide awake to the benefits likely to flow from being on the line of the great ship canal and are no doubt doing all they can to influence opinion in favor of the Erie and Oswego canal route. However no influence can be brought to bear on the engineer corps, who will obtain all possible data for Congress to determine the best route at a later date.

A COLLISION TANGLE.

It is expected that the Smith-Aurania collision will develop a three cornered legal fight, but no libel has been filed as yet. The steamer Ed. Smith is owned by John Mitchell and others, of Cleveland. It is said that the owners of the Smith claim that when the accident occurred the Smith was a fourth of a mile below the cut, and was between the steamer Mesaba, on the Canadian side, also bound up, and the Aurora and consort Aurania, bound down, on the American side. It was the evident desire of the Mesaba to pass the Smith and reach the cut first, and that in steering for the entrance to the cut the Mesaba crowded the Smith over towards the Aurora tow, so that a collision with the consort was unavoidable.

The Smith passed the Aurora safely, and in order to pass the Aurania her wheel was put hard to starboard, so as to cut across the tow line, and the master of the Aurora seeing the fix the Smith was in stopped and backed his steamer. The towline was slackened by the momentum of the Aurania, and the Smith cleared it safely and then put her wheel to port so as to straighten up and increase her chances of clearing the Aurania, but when the Smith was about three-fourths past her the stem of the big barge cut into her and she sank immediately.

THE ALIEN LABOR LAW.

The Collingwood (Georgian Bay) Enterprise has this to say regarding the arrival of George H. Breyman & Bros. dredge and tug boat from Toledo. It will be remembered that an item had gone the rounds of lake papers, stating that the American captain, engineer and two firemen were put off the tug Blazier, and Canadians put in their places:

"On Sunday afternoon last a large number of citizens were attracted to the harbor front by the arrival of the new dredging plant for the harbor improvement, and this practical evidence that work is at last to be pushed with vigor was the subject of much favorable comment.

"The new plant consists of a large and powerful dredge, and two 125-foot scows and the tug J. S. Blazier, and comes from Toledo, O. The tug Marinette also assisted in towing the dredge here, but will return to Toledo. While the dredge does not appear to be as powerful as the D'Alton Mc Carty, it is in first-class condition and fitted up with all modern improvements, and will probably be used to remove the soft stuff, although it is said to be equal to any class of work. The plant now consists of two dredges, two tugs, four scows and one steam drill, all in active operation, and if the mud don't fly it will not be for the want of sufficient plant.

"In connection with the arrival of the second dredging outfit it is said the entire crews are American citizens, engaged on the other side to work here. This is contrary to the spirit and letter of the alien labor law and should not be permitted. We have plenty of men in town wanting work and the money being expended is all town and government funds. The authorities should see to it that only Canadians are employed. In any case all government contracts should belong to the Canadian people, and any benefit to be derived from them should be their exclusive right. Of course there is not much cause for complaint where, as in the case of Capt. Collins, of the dredge D'Alton McCarty, they come and bring their families with them, expending their earnings in the town and becoming good citizens.

CAPT. JAMES STONE APPOINTED.

When the term of Capt. Michael J. Galvin, supervising inspector of steam vessels for the ninth district, expires on Sept. 1, his place will be taken by Capt. James Stone, of Cleveland, who last week was appointed by President McKinley.

The ninth district includes Lake Erie, Lake Ontario, St. Lawrence river, Lake Champlain and other waters.

Capt. Stone is one of the oldest and most popular masters on the lakes. For over twenty-five years he sailed vessels of the Bradley fleet, and never had a serious accident. He has been ashore for several years, and the last few years that he was in Mr. Bradley's employ he was commodore of that big fleet. Capt. Stone, who is one of the leading members of the lodge of the Shipmasters' Association, is generally well liked, and his appointment as supervising inspector seems to meet with approval all round.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 10TH, DIST.
BUFFALO, N. Y. August 6, 1898.

Notice is hereby given that the characteristic of the Maumee Straight Channel Entrance gas buoy, black, No. 1, has been temporarily changed so that the light shown instead of being fixed white as heretofore is now fixed white for ten (10) seconds followed by an eclipse for ten (10) seconds.

By order of the Light-House Board.

FRANKLIN HANFORD,
Commander, U. S. N., Inspector, 10th L-H. Dist.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., August 9, 1898.

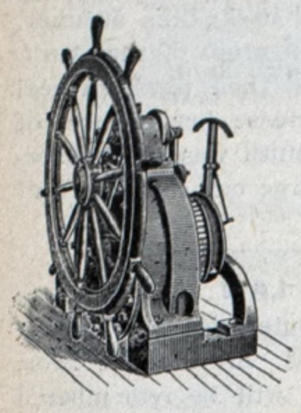
STURGEON BAY CANAL BEACON LIGHT.—Notice is hereby given that, on or about August 18, 1898, a fixed red lens lantern light will be established on the southwest revetment, southeasterly entrance to Sturgeon Bay canal from the harbor of refuge.

The light will be shown thirteen feet above lake level, from the top of a small red house.

By order of the Light-House Board:

RUSH R. WALLACE,
Commodore, U. S. Navy, Chairman.

QUEEN CITY HYDRAULIC STEERER



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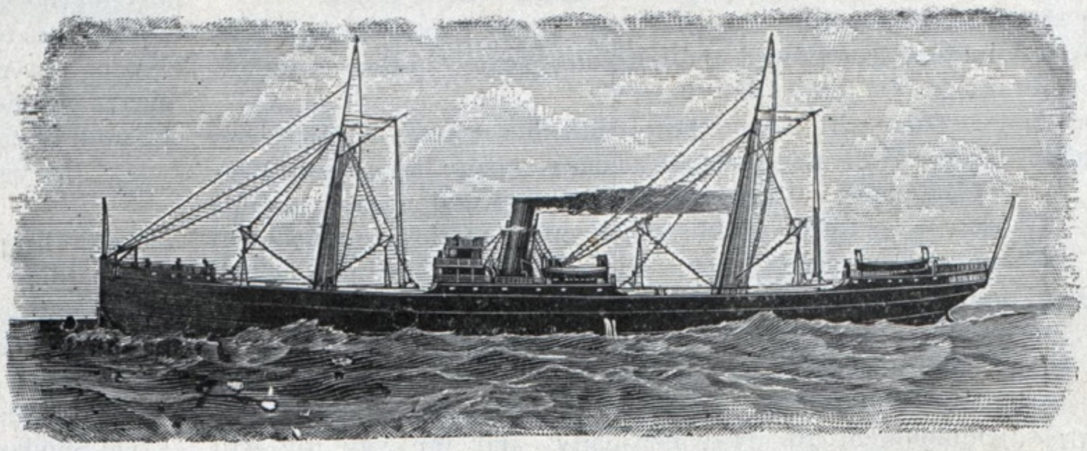

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UNITED STATES COMMERCE.

Special Correspondence to The Marine Record.

WASHINGTON, D. C., August 10.—Representatives of the great ports of the United States will be interested in some figures which the Bureau of Statistics of the Treasury Department has just compiled regarding the import and export trade of the various ports of the country and comparing the year's business with that of preceding years. The rivalry between the coast cities for the honor and profit of handling a satisfactory proportion of the foreign commerce has been unusually sharp in the past year or two. The rapid growth of the carrying trade along the chain of Great Lakes and thence by canal or rail to the coast, the sharp competition and reduced rates by rail from the great grain fields of the West to the South Atlantic ports, and the increased rail and water facilities of transportation between the upper Mississippi valley and Gulf ports, together with improved harbor facilities at various points, have produced material changes in the drift of the great bulk of the grain and provision product of the country which goes to Europe, while our increased commerce with Asia and Oceanica has materially and advantageously affected the business of the ports of the Pacific coast. These facts, together with the claim that certain ports enjoy special advantages in railway rates and terminal facilities, have made the interest in the comparative business of the various ports unusually great.

A comparison of the figures covering the exports and imports of the various ports during the fiscal year with those of preceding years presents some interesting and suggestive facts bearing on this subject. They show that the Atantic ports, considered as an entire group, retained, when compared with the preceding year, their normal proportion of the exports of the year, but lost slightly in imports, the total increase in exportation in these ports being 17.61%, while the total increase in exportation from the entire country was 17.3%; the total importation of the Atlantic ports, however, fell 21.4%, while the total importations into the country decreased but 19.3%. The Gulf ports did not, as a whole, maintain the rate of increase which the country at arge made in exports, their percentage of gain being but 8.6% against an average of 17.3% for the total, while their loss in imports was still greater, being 29.9% against an average of 19.3% for the entire country. The Pacific ports made the most satisfactory record of any group, their gain in exports being 25.7%, while they actually gained in imports 16.3%, while the total imports for the country were being decreased 19.3%. The northern border ports made the largest percentage of gain in exportations, their total for the year being 27.3% greater than that of the preceding year, while in importations the lost 21.1%.

Taking up the ports individually, however, and considering their percentage of the total commerce during a longer term of years, the contrasts and comparisons increase in interest.

Beginning with the port of New York it is found that she handled only 45.9% of the foreign commerce of the country, against 52.5% in 1890, 52.2% in 1893, 51.4% in 1896, and 48% in 1897. The loss is altogether in exportations, having been in 1898 but 36.1% of the total exportations of the country, against 37.2% in 1897, 40.1% in 1896, and 41.3% in 1894, while her importations in 1898 were 65.3% of the total imports of the country, against 64.1% in 1896 and 63.4% in 1894.

Boston did not make a satisfactory record either in her imports or exports during the year just ended. Her importations were only 8.3% of the total imports of the country, against 11.8% in 1897, 10.1% in 1896, 9.1% in 1895, 9.1% in 1893, and 8.4% in 1891. Her exportations were, in 1898, only 9.5% of the total, against 10.8% in 1896, 10.5% in 1895, and 10.08% in 1893. Taking the total imports and exports of the country Boston had, in 1898, but 9.1% of the total, against 10.5% in 1897 and 1896, 9.9% in 1895, and 9.6% in 1893.

Philadelphia's percentage of the total foreign commerce of the year was not altogether satisfactory when compared with that of preceding years. Her importations were 5.1% of the total imports into the country, while in 1897 they were 6.2%, in 1895 6.6%, in 1894 8.2%, in 1893 7.6%. Her exportations were 4.5%, against 4.5% in 1897, 4.4% in 1896, 4.3% in 1895, 5.8% in 1893, and 5.6% in 1892. Her percentage of the total imports and exports being in 1898 4.7%, in 1897 5.2%, in 1896 5.02%, in 1895 5.4%, in 1894 6.09%, in 1893 6.74%, and in 1892 6.38%.

Baltimore made material gains in her exports, though in imports there was a slight loss in her percentage of the total importations into the country. Her percentage of the total exports of the country was in 1898 9.6%, in 1897 8.1%, in 1896 7.5%, in 1895 7.6%, in 1894 8.7%, and in 1890 8.7%. Her importations in 1898 were 1.2% of the total imports into the country, in 1897 1.4%, in 1896 1.7%, in 1895 1.6%, in 1894 and 1893 1.8%, and in 1891 2.4%. Her share of the total foreign commerce of the country was in 1898 6.9%, in 1897 5.3%, in 1896 and 1895 4.8%, in 1894 5.8%, and in 1890 5.2%.

Newport News shows a rapid gain in her exports which, in 1898, were 2.4% of the total of the country, against 2.1% in 1897, 1.6% in 1896, 1895 and 1894, and a little less than 1% in 1893. Her imports have also increased materially, being in 1898 more than three times those of 1894, the total, however, forming less than 1% of the total imports into the country, while her share of the total imports and exports of the country was in 1898 1.7%, in 1897 1.2%, while prior to that time they formed less than 1% of the total.

The Gulf ports increased their exportations materially, especially in wheat and wheat flour, though in some there was a heavy decrease. Galveston increased her exports over those of last year 17.6%, while those of New Orleans increased 11% over those of last year. In imports, Galveston made a marked increase, those of 1898 being 49.7% greater than those of 1897, while New Orleans lost materially in her imports which, in 1898, were 41.9% less than in 1897. The imports at New Orleans in 1898 amounted to 1.57% of the total imports into the country, against 2.17% in 1897, 2.76% in 1894, and 2.41% in 1891, while the exports were 9.15% of the total of the country in 1898, against 9.66% in 1897, 9.18% in 1893, 12.74% in 1892, and 12.69% in 1890. Galveston's share of the total exportations of the country in 1898 was 5.56%, against 5.54% in 1897, 4.12% in 1896, 3.93% in 1894, 3.43% in 1892, and 2.88% in 1890.

Pacific coast ports, as already indicated, show a gain both in imports and exports. San Francisco exported in 1898 3.34% of the total exports of the country, against 3.08% in 1895, 2.79% in 1894, 3.96% in 1892, and 4.24% in 1890. Her percentage of the imports was in 1898 6.98%, in 1897 4.50%, in 1895 4.95%, and in 1890 6.18%. The Puget Sound customs district gained materially in her share of the commerce of the country, her exports in 1898 being 1.45% of the total, against 1.13% in 1897, .73% in 1896, .55% in 1893, and .39% in 1890, while the imports of the year, although slightly less than those of 1897, were much greater than those of any prior year.

Taking up the leading articles of our export, such as wheat, corn, flour, etc., it is found that the North Atlantic ports have lost materially in their proportion of the export trade, while their loss becomes the gain of ports farther south. New York, which in 1893, handled 33.7% of the

wheat exported, handled but 24.9% of the wheat exported in 1898; her percentage of the corn export of 1893 was 26.7%, and in 1898 but 20.3%; her percentage of the flour export, which in 1893 was 36.2%, fell to 32.3% in 1898, while her percentage of the exportation of oats, which in 1893 was 83.3%, fell to 58.2% in 1898. Boston exported in 1893 less than 6% of the wheat crop, against over 14% in 1897, and but 5.5% of the corn exports, against over 10% in 1894.

This loss of grain exports by New York and Boston became the gain of Baltimore, Newport News, New Orleans, Galveston and certain of the northern border ports. Baltimore handled in 1898 14.7% of the wheat exportations, against 8.1% in 1897; Newport News increased from less than 1% in 1896 to over 2% in 1898; New Orleans increased from less than 4% in 1897 to over 11% in 1898, and Galveston increased from 4.5% in 1897 to over 7% in 1898. In corn exports, however, New Orleans and Galveston lost, New Orleans dropping from 17.2% of the total corn exports of 1897 to 11.1% in 1898, while Galveston dropped from 3.4% in 1897 to 2.3% in 1898.

SHIP DRILLS.

It is time now that the marine insurance companies and underwriters agents, which are the only power recognized by the passenger steamship companies, should make a law that they will not insure vessels on which three drills, to be specified, do not take place at least twice a month. These drills are familiar to every man who has served on board an American man-of-war, and they ought to be made familiar to every one who serves on a passenger ship in the ocean trade. These are fire drill, collision drill and "abandon ship" drill. On well governed lines these drills—or the first and third at any rate—are practiced, though none too often. Frequent practice of these drills results in every man's being perfectly familiar with his station and duties, so that in the hour when the drill becomes a real performance he is cool and collected. Furthermore, he knows that a correct performance of the duty allotted to him will insure his own safety, and hence he will not feel under the necessity of making a wild fight for his life. These facts are well known in the naval service, and the men are kept familiar with the duties of these drills. It must be quite evident to every one that there was no system for abandoning the ship on the Bourgogne, or at any rate a very important one. The insurance companies, it seems, are the only authorities to deal with such matters. They work for civilized system at sea all the time. They compel ship owners to employ masters and mates who have certain examinations and been formally licensed. They compel ship owners to submit their vessels to inspection of hull and boiler. They compel ship owners to limit the load of their ships. The laws bearing on these matters originated in the demands of insurance companies. Now let the steamship companies demand the passage of laws requiring the drills mentioned on pain of raising the insurance rates. The companies which insure their own vessels would be reached indirectly, because they could not afford to neglect precautions designed to inspire public confidence. This is a matter which should receive immediate attention. Bourgogne horrors have no business to occur in an age of enlightenment.—New York Times.

TO COMPLETE THE NICARAGUA CANAL.

Lyman E. Cooley, of Chicago, the well known civil engineer, after a visit east and a conference in New York with representatives of the Maritime Canal Co., owners of all the rights and concessions along the proposed route of the Nicaragua canal, believes that the United States government will construct the great waterway in preference to letting the contract to private companies or corporations. Mr. Cooley says:

"The construction of the waterway will not be a tremendous undertaking, though it may take seven years to do it. The Maritime Canal Co. asks for $11,500,000 from the government to relinquish all of its rights and concessions. The company bought out all of the concessions. The company, it is understood, will take $7,000,000 in the stock of a new company that the government might form and $4,500,000 from the government to validate its bonds. The company bought out all of the concessions of the old Nicaragua association, which is said to have expended something like $5,000,000. The Maritime Canal Co. was then organized, and it has spent $2,000,000 in Nicaragua on the canal undertaking, but had to quit the work."

EASTERN FREIGHT REPORT.

Messers. Funch, Edye & Co., New York, in their usual weekly freight report for eastern ports places the freight market as follows:

The list of charters effected for grain shows quite an increase in number of fixtures, but, unfortunately, accompanied by a steady decline in freight rates. The enquiry for small tonnage for Cork f. o. is practically dead, unless connected with by options for special ports, notably Denmark. Rates for deals from the Provinces continue dull and depressed, whilst timber freights from the Gulf ports, although not active, are fairly well maintained. Other trades are inactive, and the general enquiry for steamers light. A few time charters effected show a very sharp decline from former quotations.

Our market for sail tonnage continues very quiet, and we do not see any prospects for immediate improvement. Rates, though weak, show no decided decline, however, except in the South American business, freights for which ports are influenced by the approaching restoration of peace, and have receded to about the same level which they held before the war.

CAPT. JOSHUA SLOCUM is doubtless both a hardy mariner and an enterprising man. To make a trip around the world in a small boat is no doubt a feat, but one which we would rather somebody else performed than ourselves. Since April, 1895, Capt. Slocum has been afloat on the fierce ocean tide in a 30-foot lugger, and says he has navigated 46,000 miles of sea. It is to be hoped he liked it, for we cannot see any earthly, or oceanic, purpose served by the exploit. Capt. Slocum's voyage is real, but it reminds us of the yarns of some American travelers on board a trans-Atlantic liner, who were telling tall stories against each other about wonderful voyagers. After a pretty high series one New Yorker said: "Wal, I guess the smartest thing I ever saw in the way of voyagin' was a man on a raft we met last time I crossed, three days out from Queenstswn, bound east. We hailed him, and he said he was 'way from Boston bound for Liverpool, and had navigated that 'ere log all by himself. He declined any assistance, and guessed he would be to port nigh as soon as us." Says a Bostonian, with an eager light in his steely eye: "Say, stranger, you saw that man?" "Yes; I saw that man right alongside." "Wal, now, stranger, I'm real glad to meet you. I was that man." And there were no more smoke-room stories that night.—The Syren and Shipping, London.

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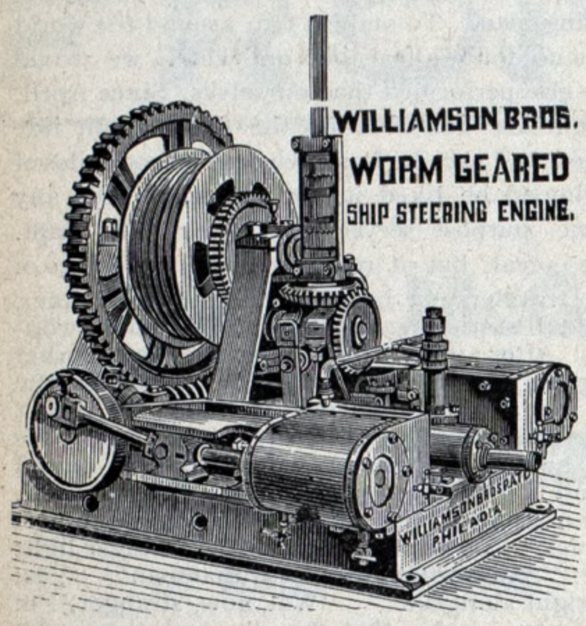

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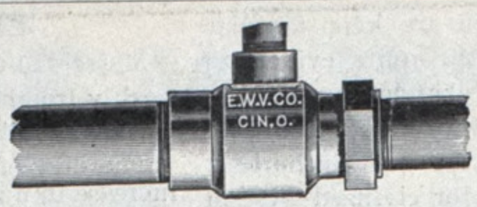

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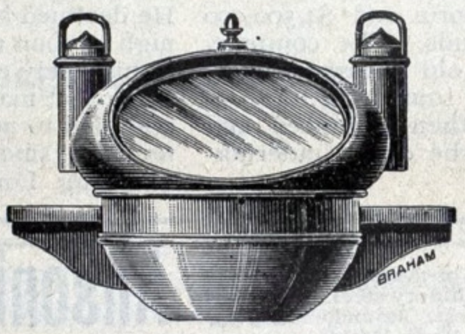

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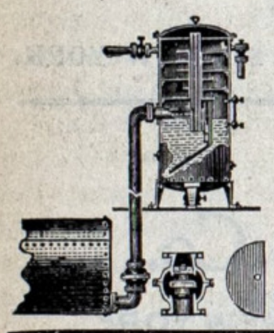

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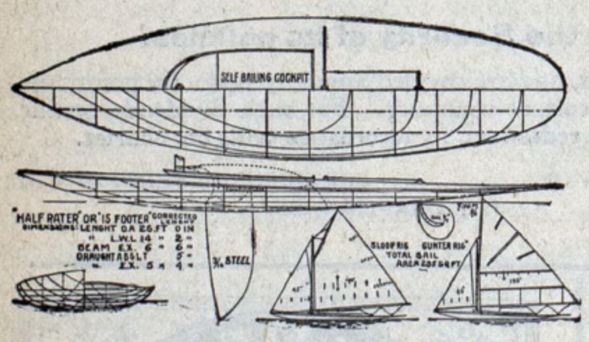

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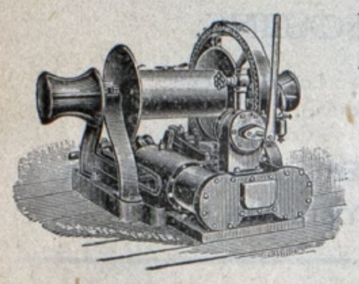

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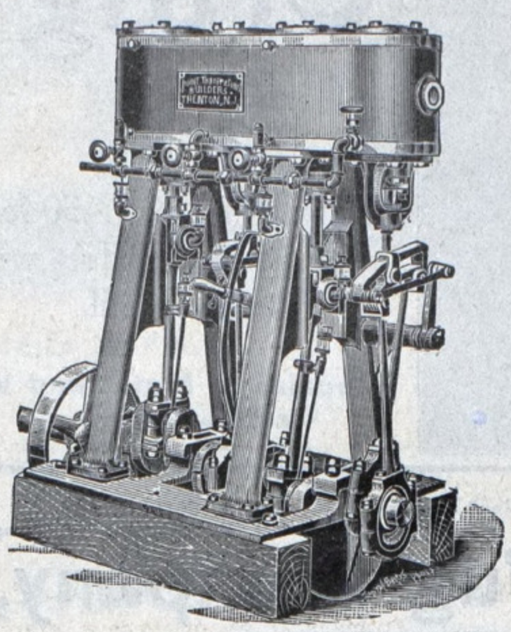

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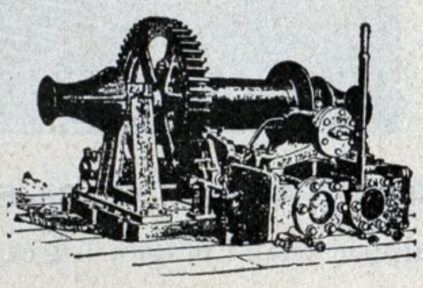

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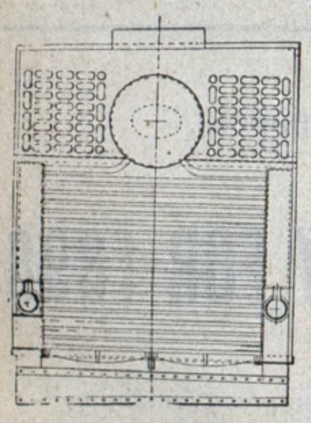

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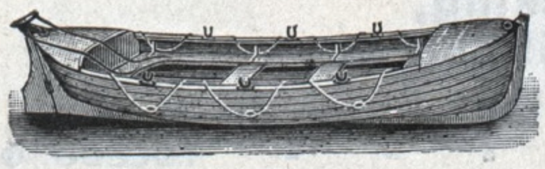

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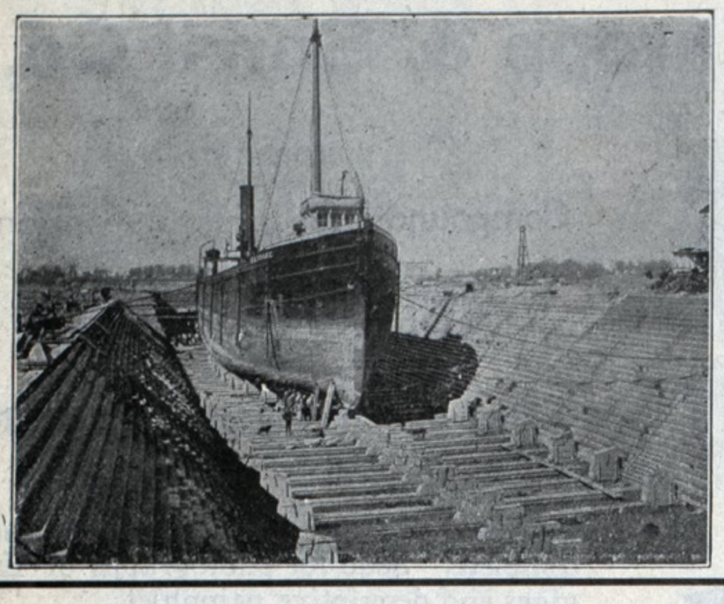

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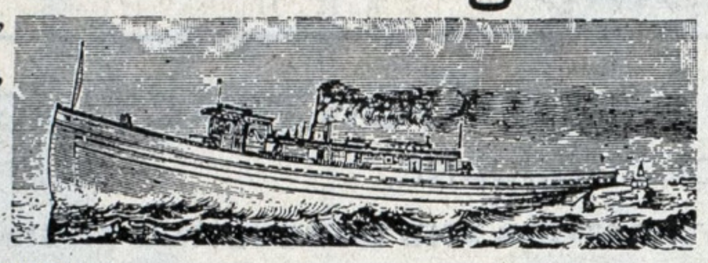

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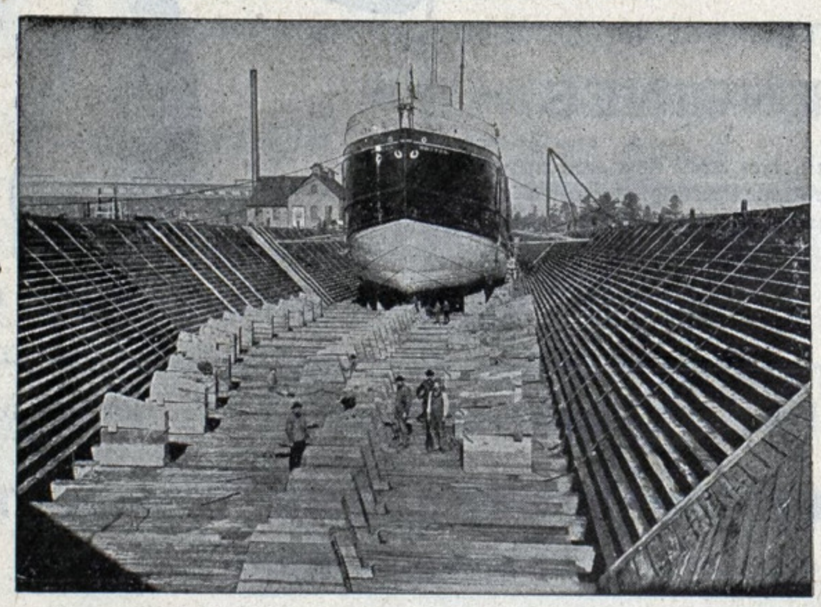

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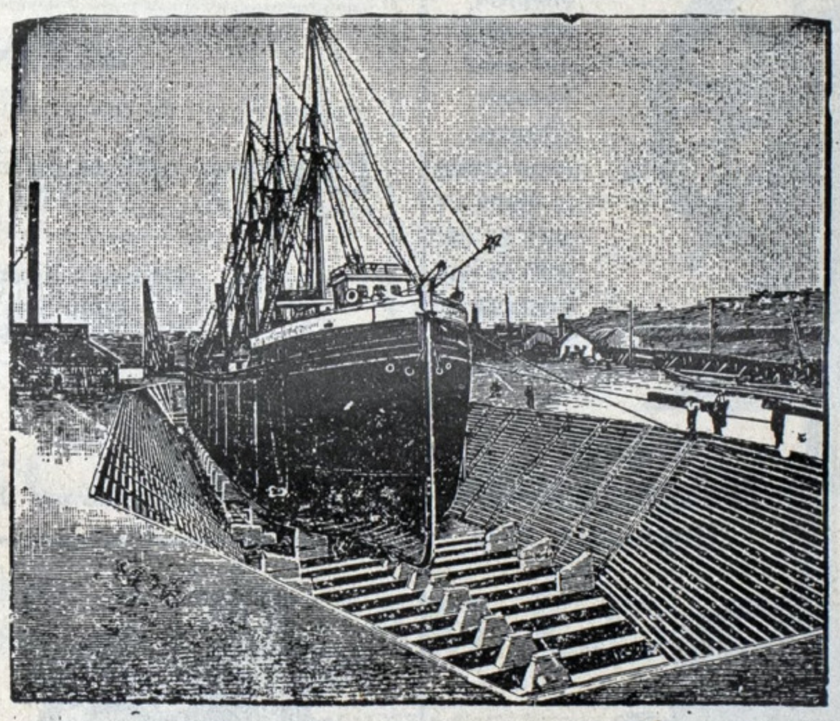

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